MORALIZING VIOLENCE:
Representations of Electro-Shock Weapons

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INTRODUCTION

Throughout history technology has been implicated in acts of violence. Recent coercive actions by apparatuses of the state, or what is called the use of force in polite circles, owe much to scientific and technical developments. With the ever changing character of contemporary conflict, there has been a search for alternative force options responsive to perceived and portrayed demands. Today there is heightened attention in many Western countries and elsewhere to so-called 'non-' or 'less-lethal' weapons, devices intentionally designed and employed to minimize damage. The growing unacceptability of death and injuries caused by or inflicted on military, police, and detention officers are said to require new ways of handling conflict situations. Innovations in technology under the banner of 'non-lethal options' have become a significant part of the response to such pressures. Not for the first time, the talk in many police and military circles is that of the need for all change in weapon capabilities.

As an example of the search for non-lethal options, the use of traditional firearms by law enforcement and security agencies is associated with many unfortunate consequences and causalities. David Alvirez, founder of a US-based firm called A.L.S. Technologies, has researched less-lethal impact ammunitions. Promotional material for the company outlines the rationale:

> Alvirez has developed a less-than-lethal bullet product line, which he calls his 'Power Punch.' Delivering a blow similar to what one might get in martial arts, the Power Punch, he said, is like being hit with the equivalent of a .32-caliber automatic but it's spread over such a larger area that it doesn't penetrate. It can knock a person out, he said. Part of our statement is that it should never be aimed at the head. The bullet, for a 12-gauge shotgun, primarily has been used by law enforcement he said, but it was his intention in developing it that it would be for home defense. We thought we could provide an alternative to taking a life. If you use this bag, you can say, 'I've given it every chance.' The next shot is your normal lethal round. This is to take control of the situation so you can allow the authorities to get there. People's attitude change once they've been hit with that amount of force. It's called attitude adjustment ammunition

(A.L.S. Technologies 1999).

Herein lies the promise of non-lethals in its most pure form: these weapons entail comparatively more acceptable options than other use of force means. Various benefits hopefully follow from this, most importantly perhaps a substantiation of the relatively benign intent of those individuals deploying these weapons and thereby an enhancement of their legitimacy.

Discussions about non-lethals entail a mixing of concerns over practical necessities, power, idealism and morality. Accounts about this class of weapons attempt to inscribe ethical relations between technology and social actors. This engineering of relations takes place in contentious settings. Disagreement is rife about the wisdom of the use of force in general: views on the appropriate response to individuals in the hills of Los Angeles and children throwing stones or Molotov cocktails in the Middle East tend to vary. The study of non-lethal weapons forces us to confront the strategies deployed for securing a morally acceptable or unacceptable form of intervention with technology.

The paper analyses the claims and counterclaims made of non-lethal weapons and the implications of these for assessment of this technology. It examines how partial and contingent representations are textualized so as to impose meaning on disputed, uncertain, and possible events. In this way rather than arguing for a specific reading (e.g., whether particular weapons are 'safe' or being abused), the concern here is with the (re-)crafting of accounts. It traces how accounts given of non-lethal weapons are at once both attempts to construct persuasive stories of technology and to secure the credibility of those organizations making the characterization.

Beyond just mapping out such issues though, this article advances an alternative style of critique for those sceptical of this technology. Many of the arguments presented here derive from documentation, interviews, and insights I have gained (since 1997) as part of Amnesty International (United Kingdom Section) Military, Security and Police Working Group. The Group's primary aim is to track and campaign for the end of the proliferation of military and police weapons (whether 'non-lethal' or 'lethal') from the UK to countries where they are likely to be used in human rights violations. This paper attempts to articulate *both* a growing scepticism of non-lethal technology as well as the limitations of existing forms of criticism. As such, while the claims offered are meant to further an understanding of the interpretation and evaluation of the place, functions, and effects of technology, particular emphasis is given to the implications for critical accounts.

In this way, this article seeks to promote wider discussions in science and technology studies regarding the potential for those within academe to offer forms of 'counter-expertise'. Fortun and Cherkasky (1998) describe various binds in the roles and the identities of those combining intellectualism and advocacy. A central dilemma in such activities is not abandoning rationalistic forms of argumentation, but not merely accepting these at face value. In such situations, the proper response is often one of pragmatism; in other words, subscribing to a strategic commitment to rationality in a manner that suits particular purposes. As they argue in relation to choosing a mode of

stylistic representation for practical engagement: '[t]he challenge is to recognize that any mode of representation inevitably involves mismatch, then choose the mode of representation most able to engage the task at hand. In some instances, modeling or categorization is necessary, despite reductions involved. In other instances, less formalistic modes of representation work best, allowing one to gesture at that which cannot be articulated and to question one's own descriptive efficacy' (*ibid.*: 164). Authors such as Hammersely (1995) have asked challenges questions about whether advocacy-driven academic research is able to step back from the assumptions guiding its agendas so to reconcile the pursuit of political goals with furthering 'knowledge' (Hammersley 1995).

This article is not primary concerned about the dilemmas faced by myself as an academic trying to engage in 'practical' and 'relevant' research about non-lethals (though they are numerous and varied), but instead in the possibility for offering insightful and alternative modes of critique or 'counter-expertise' of this technology. I contend that a range of supporters and opponents of non-lethals fails to draw attention to the conditions under which interpretations about weapons are advanced. As such their assessments are found wanting. The general concern of this paper is how to find appropriate styles of representation when the facts are disputed and uncertain. It offers a mode of critique responsive to current debates but able to recast their preoccupations and presumptions as well. This is done by drawing and reformulating reflexive and interpretative forms of analysis (see, e.g., Mulkay 1985; Woolgar 1988; Grint and Woolgar 1997). It is argued that being sensitive to conditions of production and taking a 'contingent' instead of 'fixed' view of technology can produce alternative and arguably more plausible accounts. By drawing on my experiences, I hope include within my analysis something of the motivations and frustrations of those attempting to critique this class of weaponry.

Focus is given to a particular class of non-lethals called 'electroshock weapons' and these primarily in terms of their deployment in the United States. The next section examines the general claims and counterclaims made about electroshock weapons by a diversity of actors: security officers, manufacturers, research scientists and human rights groups. The controversies surrounding the use of electroshock weapons and other non-lethals are then situated in relation to a specific case: allegations of excessive force in Maricopa County, Arizona jails.

Research into new forms of 'publicly acceptable' weaponry is moving apace. Those technologies currently on the streets and battlefields are likely superseded by further innovations in the near future. This paper seeks to give a warning to such present and future developments. It offers a basis for analysing this class of technology sensitive to the interpretative considerations at work and the basis of disagreement. While any analysis such as this one can only be part of the assessment of technology, the attempt is being made here to clarify the commitments and implications of particular argumentative and representative forms.

ELECTROSHOCK TECHNOLOGY

> Electricity speaks every language known to man. No translation necessary. Everybody is afraid of electricity, and rightfully so.
>
> -- Dennis Kaufman, President of Stun Tech Inc. [Quoted from Amnesty International (2001: 29)]

There is a wide range of non-lethal technologies that use electrical currents to incapacitate or shock individuals by interfering with nerve signals within the body: hand-held stun 'guns', stun batons and stun shields have electrodes that administer energy at the flip of a switch. Some of these close quarter devices contain additional features such as enhanced sparks or small loudspeakers that enable greater visual and audio effect. A variety of equipment allows for administering shocks over a distance. One prominent sub-class of such equipment is TASER® technology, the name derived from children's story Thomas A. Swift's Electrical Rifle . TASERs use propelled probes connected by wires to a power source. Research supported by the US Defense Advanced Research Projects Agency and the National Institutes of Justice has led to the production of the Sticky Shocker®, a wireless self-contained projectile that has an electrical power and short barbs that make the projectile cling or 'stick' to individuals. There is some permeability between these classes of weapons; TASERs without probe cartridges can act as stun guns in close encounters.

Magic bullets

A quick reading of police and manufacturer literature reveals almost uncontested belief in the merits of electroshock technology. For instance, Lt. Sid Heal (1999) of the Los Angeles Sheriff's Department, a highly prominent advocate of non-lethal weapons, has referred to electroshock weapons as 'magic bullets' because they match the public's expectation for weapons that are instantaneously effective, incur little or no physical harm, and cause reversible damage which is environmentally benign. In short, for Heal electricity based weapons are the nearest things to the Star Trek phaser.

In countries such as the US there are a wide range of manufacturers and suppliers of such technology and the lower wattage versions are readily available through weapon shops or on-line sites. Names for stun guns such 'Stun Monster', 'Star Warriors', 'Maxi Blasters', and 'Muscle Man' give a feel for the types of images being evoked. The 'Stun Monster' is claimed to be the strongest hitting stun gun in the world by putting out 625,000 volts, yet 'it is totally non-lethal and will cause no permanent damage' (see J&L Self Defense Products 2001). Like any technology, however, there are some limitations. Suppliers J&L note stun guns:

> require several seconds of contact to be effective. Because of this, we will always advise you to purchase a Fox Labs Pepper Spray FIRST. Our spray takes them down in 1 or 2 seconds in most cases and keeps then down for 30 seconds...Now if you really want a stun gun, then buy a spray too, you can't go wrong with both (*ibid.*).

Among manufacturers of non-lethal weapons, TASER producers have been some of the most vocal in advocating their products. As the president of AIR TASER© (now called TASER International©) states:

> It is unfortunate that our society [i.e. the US] needs any weapons. But the fact remains that violence, like cancer, will continue to occur. And while chemotherapy is a highly unpleasant process, it is superior to the alternative of certain death. Our society has a cancer called gun violence, and non-lethal weapons can serve as the chemotherapy...With an AIR TASER or other non-lethals weapons, no one dies. No one is crippled. No one is maimed. Medical costs are zero. There is no pain, no suffering (Smith 1997: 27).

Individuals such as Smith offer definitive accounts of the effects of this technology that transcend most discussions about violence that are 'dominated by emotion and pre-conceived notions of 'right' and 'wrong' (Smith 1997: 27). Instead TASER International seeks a rational basis for assessment. In this regard, Smith (2000) claims that no deaths and no significant injuries have been reported about his company's TASER technology. On the basis of key publications of operational experiences such as Ordog et al. (1987) and Kornblum and Reddy (1991), the non-lethality of TASER technology is 'now a fact' (TASER International 2001a).

Proponents thus seek a 'rationalistic' basis for assessment for such technology, defined in terms of a comparison of a limited range of its immediate physical effects with other use of force options. So, electroshock technology is said to be much less damaging than the use of firearms for controlling unruly individuals. In the selling of this technology there is little room for multiple judgments or interpretations on key factual matters. Nor is space made for effects related to wider issues, such as the potential for an escalation of force. The implications of technology are all on the surface.

For those in law enforcement agencies, a major operational concern with the electroshock technology is its effectiveness. Despite long standing claims about the effectiveness of TASERs, AIR TASER has recently stated that its devices proved ineffective in 15% to 33% of cases. In response it has introduced a new, advanced line of weapons with significantly higher wattage levels (Smith 2001a). The new 26-watt version, the ADVANCED TASER, is said to be 99% effective in incapacitating individuals, making it more effective than firearms. Promotion material fosters this image by illustrating test results on elite military and police personnel. So, a former US Marines Chief Instructor in hand to hand combat states, I have been hit by hand grenades yet still complete my mission. The ADVANCED TASER is the only thing that has ever stopped me (TASER International 2000). Taking these health concerns as minimal or non-existent, the logic is such that the more effective the technology the better, as this prevents recourse to other forms of force.

Furthermore, in light of these points, the choice *not* to adopt the technology is unacceptable. Former chief commissioner of the Victoria Police Kel Glare (whose

company is reported to have distribution rights for the AIR TASER in Australia) said, 'If there is now someone killed in circumstances where a Taser could have solved the problem without being lethal, police are vulnerable to a law suit' (Douez 2001).

Assessments of TASERs as effective and benign are echoed elsewhere. Sergeant Darren Laur (1999) of the Canadian Victoria police department states that TASER technology is well over studied by the medical community. He goes on to further state: 'I can not emphasis enough, that TASER pulse wave technology weapons that use 50,000 volts and 5 watts have been medically proven to be safe when used on normal healthy subjects. Although there are always risks using any force option to control violent behavior, the medical risks posed by the TASER are very minimal when compared to blunt trauma injuries caused by empty hand impact techniques and baton strikes, or even trauma caused by an officer's firearm.' Laur reports on trials in Victoria where fourteen suicidal or violent individuals were subdued by use of TASERs. Moreover, in many of these cases merely displaying a TASER and making a verbal warning of its shock potential was said to be enough to gain compliance.

In these types of statements, another source of the authoritative credence less obvious than the rational technology assessment is that proponents adopt the position of officers or other members of the public who are affected by and must respond to the violent actions of others. Law enforcement officers, or those in a position to speak for them, have a double legitimacy in determining the merits of technology given their professional expertise and positional advantage/practical experience in relation to the conflict situations under question (Hall 1977). The claims of these actors are treated as having a self-evident legitimacy. In case of electroshock technology, there are very few formal, substantial operational assessments of these devices. While this situation problematizes statements about utility, such concerns are mitigated by drawing on (often merely anecdotal) accounts of users.

Interfering signals

In contrast to the images promoted in the company brochures and officers' reports cited above, a number of individuals have called into question claims about the merits of electroshock devices. The critical points raise questions about the credibility of these sources and the significance attached to particular pieces of evidence. In a study of the cardiac effects of prominent stun guns models on anaesthetized pigs, Roy and Podgorski (1989) found such devices could cause ventricular fibrillation if they were applied directly to the heart and pump failure when applied directly to the chest. For those people wearing pacemakers the dangers were said to be particularly acute.

As versions of TASERs have been in use for over twenty years by agencies such the Los Angeles Police Department, if the conclusions of such experimental tests are correct then there are likely to be a number of deaths attributed to such devices. And yet, the cause of death in police-citizen encounters involving such equipment is much disputed. Experiential based assessments such as Ordog et al. (1987) and Kornblum and Reddy (1991) have argued that none of the fatalities deriving from incidents involving the use of

TASER weapons were caused by the TASERs themselves. Instead, these authors attributed deaths to drug overdoses or the blunt trauma weapons also utilized. Based on experience as a forensic pathologist in Los Angeles, Allen (1992) in turn has disputed such arguments contending the conclusions were incomplete and flawed. Although many (but not all) of the sixteen deaths examined by authors such Kornblum and Reddy (1991) were associated with drug use, for instance, Allen argued it was quite likely that this condition or others such as heart disease increased the lethality of TASERs. More insidiously, he has implied the reporting of TASER related deaths in places such as Los Angeles would be higher were it not for the pressure placed on pathologists not to make this connection. In one case, for instance, he recalled the:

> autopsy was performed in the presence of six-upper level law enforcement agents who were confrontational and argumentative in their attempts to persuade me that death was caused by drowning in a few inches of water. I was not allowed to attend the death scene. I insisted that the cause of death would not be determined until all tests were complete. My opinion was widely and prematurely misquoted by the officers. Likewise, I was called into Dr. Kornblum's office to defend my investigation in something more akin to a disciplinary hearing than a scientific conference. In the end, Dr. Kornblum seemed to agree that the tasering was the immediate cause of death. Yet, in his article it is stated that the death clearly fits into cocaine category (Allen 1992: 957).

Such accounts of the conditions under which determinations of the causes of death are made stand in sharp contrast to definitive statements made by manufacturers. Various reports of injury and death have been associated with TASERs and electroshock technologies, each raises questions about causality (see, e.g., Orlando Sentinel Tribune 1991; Cusac 1996; Doucet and Lloyd 2001: 51; Hammock 2001).

Compounding such disputes about the causes of death in particular situations is the lack of any regulatory or licensing procedures for electroshock devices. Despite claims about the safety of such technology, TASERs are the only electroshock related technology specifically approved as relatively safe by US government agencies and this was only done for the earliest 5 watt version. In 1976 the US Consumer Product Safety Commission evaluated this model and found it relatively non-lethal for 'normal and healthy persons'. O'Brien (1991) contends the Commission's findings were based on theoretical models that took as their basis for evaluation the 'risk of unreasonable injury' rather than the 'unreasonable risk of injury'. According to him stun guns manufacturers have improperly drawn on these findings from the original TASER model to substantiate the safety of other products. He points to a lack of national figures in the US on deaths attributed to electronic weapons, the limited existing research on effects, and various animal tests that reveal significant dangers. This lack of a regulatory framework is paralleled in Europe, where the use of such technology has been much less widespread. The EC does test electroshock equipment through the so-called 'CE' quality approval marking control for electrical goods, though this safety marking applies to the *users* rather than the *recipients* of such weapons (see Omega Foundation 2000).

Adding to the qualifications and complications noted above are variations in effects due to recipients characteristics (e.g., body temperature, amount of clothing, and skin moisture), the contact duration and the areas targeted (e.g., the chest, whether the TASER probes hit someone's eyes), and differences within and between types of devices in terms of their power sources, peak voltage and electrical outputs. Once electroshock devices are used in connection with the application of other types of force, the possibilities for specifying likely effects and proper use becomes even more problematic.

Key concerns in debates about the medical implications of electroshock devices relate to attributions of sameness/difference and oldness/newness attributed to these technologies. As with other scientific and technological endeavours (e.g., Krimsky 1998), alternative positions are taken regarding the distinctiveness to foster particular assessments. So, the Advanced TASER M26 model mentioned above has a much higher power output (26 watts) than the model tested for safety (5 watts) by the Consumer Product Safety Commission. While this is supposed to bring about a substantial increase in the effectiveness of the devices, this is said to pose no greater health concerns. Despite claims about the unique approval status of TASER technology in contrast to other electroshock equipment, evaluations of stun guns are readily drawn upon to substantiate the safety of TASERs (TASER International 2001b).

For the analyst wishing to evaluate this technology, noting these considerations does not lead to clear evaluation implications. The factors noted in the last few paragraphs obviously complicate statements made that electroshock technology pose no long-term effects. However, they also undermine generic criticisms of this technology. If every type of electroshock weapon differs in its characteristics and its effects are contextual, then it is probably highly problematic to argue about the general unacceptability or risks associated with this technology. Any definitive statement about the 'actual' effects of such technology by proponents or critics depends on a willingness to suppress certain variables in order to make generalized claims. Proponents may acknowledge the (minor) possibility of death or serious injury resulting, but the risks of this are said to be much lower than through the use of other force options, such as firearms. The question arises though of whether such comparisons are reasonable.

The dynamic regarding the difficultly of establishing a definitive account is much the same in relation to comparing the effectiveness of weapons. Electroshock equipment competes with other technologies and use of force methods for a space in the arsenal and budgets of organizations. In the past, the range of electroshock technology has not fared particular well compared to other options. Of course, much depends on the situations in which particularly options are utilized. Contrasting the general effectiveness ratings for electroshock weapons versus batons, for instance, is of questionable value. The handful of incidents of TASER deployment noted by Laur (1999) in the main consist of a variety of stand-off situations such as barricaded or suicidal individuals where many of the contingencies or difficulties surrounding the use of such equipment are minimized. In favour of the effectiveness of such particular equipments, TASER International has claimed its products are often used on those under influence of drugs like PCP that make individuals more difficult to control. In addition, there are uncertainties surrounding the

extent to which conflict is resolved due to particular pieces of equipment or other contextual factors. Ideally information on the deterrence outcomes of options could be compared for each type of force option across various situations, but in practice the detailed information necessary for making such an evaluation rarely exists.

What can be said about electroshock technology is that evidence is often weak or mixed and not able to resolve the 'facts of the matter' in an authoritative fashion. It is hardly surprising that given the uncertainties and ambiguities mentioned above the controls on ownership of electroshock technology vary considerably throughout the world as well as within countries such as the US. Trying to make evaluations about the technology on the basis of cost-benefit assessment of the technology would require information on risks of injuries to targets and users from different options, the assaults on staff, where the equipment is used, etc. Such information though is often non-existent or limited in its circulation. Key concerns exist how any evaluation copes with the competing accounts and uncertainties associated with this technology.

This is illustrated in a report commissioned by TASER International entitled *The Advanced Taser: A Medical Review*. Two hospital consultants, Bleetman and Steyn (2000), assessed the injury potential of the Advanced TASER in preparation for trialling these devices in a British police force. As there is little in the way of clinical experience with this particular model, the authors conducted a MEDLINE literature review of the reports of electrical injury relevant to electroshock weaponry. They mentioned and downplay a number of controversial aspects of electroshock technology. The conclusions about the heightened risks for those with pacemakers are noted. Yet these were called into question during writing up of review by personal communication with the TASER International consultant Dr. Stratbucker (Bleetman 2000). The review states Stratbucker reported to Bleetman and Steyn that he could not duplicate the results and therefore they were not credible. No further details are given as to evidence offered for this counter assertion. Bleetman and Steyn (2000) stated they were not able to determine the debate one way or the other and they therefore concluded the risks to those with pacemakers and defibrillators were 'quite small'. Similarly, the variability of effects due to alternative skin resistance and the subsequent implications for vital body organs was noted but downplayed because of a personnel communication by Dr. Stratbucker during the drafting stage of the report. The high frequency currents of Advanced TASER were claimed by Stratbucker to stay near the body surface and not affect vital organs. One of the authors of the review told me that he did not know how to treat such competing claims because he was not an expert on the specific subject and so was unable to prove the *critical* claims (Bleetman 2000). The asymmetrical accounting procedures regarding divergent knowledge claims makes apparent the types of contingencies that influence the findings of such reports.

As the review was concerned with evaluating definitive medical evidence, the organizational and institutional factors implicated in assessments of electroshock technology are not elaborated. This has important implications for the conclusions derived. So, while noting the medical claims presented by Allen (1992) and O'Brien (1991), no mention is made of the wider questions they raise about the determinants

behind what evidence exists. With regard to the contentions made above, Bleetman and Steyn (2000: 19) simply conclude 'there is no convincing evidence directly implicating Taser weaponry in deaths of subjects in over 25 years' experience in America'. Herein this ostensibly objective review it is possible to see the way in which claims are varyingly drawn upon as well as the importance of influence from particular actors in the interpretation of evidence.

On the basis of the review Bleetman and Steyn conclude the risk of injury with electric weaponry such as TASERs compares favourably with other use of force options. The risk potential is much less than with other technologies like kinetic energy projectiles. Some cautionary points are noted such as potential for greater harm for elderly subjects or those with pre-existing heart disease. Still, the technology is not completely without complications in terms of securing an overall favourable reading by others. Noting articles in medical journals from Amnesty International, the authors conclude 'depending on how their introduction might be publicized in the media, their use might be construed as a potential weapon of torture' (*ibid.*: 18). They advise 'the media portrayal of the introduction of these weapons needs to be handled very carefully' (*ibid.*: 19).

On the torture trail

It has long been recognized by those within police and military circles that while electroshock technology has desirable force characteristics, such devices are often publicly unacceptable (Edgar 1976). Human rights and civil liberties groups are on the forefront of criticism. Amnesty International has had perhaps the most sustained interest among major human rights organizations in non-lethal weapons. Of all the weapons that offer a potential for facilitating torture or ill treatment, the category of electroshock equipment has come under particular scrutiny (see Amnesty International 2001). The ease of using this electroshock technology, the inability of users to gauge its effects, and the lack of residual body marks makes it ideal for abuse (Amnesty International 1997). Amnesty has documented electroshock technology used in cases of torture and ill-treatment in 70 countries, both 'developed' and 'developing' nations. That much of this technology derives from the US, Germany, France, and other industrialized countries (the home of the vast majority of Amnesty members) and proliferates around the globe is a further cause for concern.

At first glance, the technologies of torture or abuse would seem to represent graphic, concrete, and straightforward points around which to focus. But weaponry poses fundamental dilemmas for human rights organizations. At a basic level this is a matter of whether or not to spend limited time and resources campaigning about the trade and deployment of such devices or whether to call for the reform of those committing abuses. While there is always the possibility for the abuse of non-lethal weapons, the position of such groups is not simply one of opposition. International human rights law encourages the development of non-lethal weapons and Amnesty recognizes the *potential* of such technology to minimize injury.

Given such considerations, key issues arise regarding what claims should be made, how these are sustained and what implications follow from them. As a basis for claims to legitimacy, much of the weight of human rights reporting comes from speaking for the defenseless. Unlike the authors in the last section who started from the users of technology, human rights organizations often speak for the victims of technology. Doing so is not unproblematic. In this regard, Wilson (1997) has commented on the contingencies and limitations of reports of human rights abuses made by organizations such as Amnesty International. He argues they often deploy a legal-rationalistic basis for authority. In this way, human rights groups aspire to a 'culture of scientism' as represented by universal classification and objective data.

Wilson contends that in practice the extent and type of reporting of violations is contingent on a number of issues related to the perceived nature of offences, the targets, and the sources of information at the disposal of organizations. The uncertainties involved in the construction of cases are generally buried in favour of very narrow account of facts. As Wilson contends, [i]nstead of a documentary style which recognizes the indeterminacy of a case (which human rights organizations generally recognize at a different level) and the limitations of any media representation, the facts in the main text of human right reports simply speak for themselves' (Wilson 1997: 143). A consideration of how information gathered and assembled goes missing in the search for universalistic arguments about rights and violations based on certainty. While human rights organizations might often draw on subjective accounts by victims of pain, humiliation, fear, and uncertainty, in the striving for scientism and actionable certainties subjectivities and doubt are restricted to victims rather than the organizations decrying abusive actions.

In 1997, Amnesty launched its first major study solely dedicated to electroshock technology. It called for the end of the trade of such technology to countries where it is likely to be used for torture or ill treatment. In a selective way, the report drew attention to those medical studies that argued for the potential severe effects or a lack of proper research. The 2000-1 worldwide torture campaign has been the latest in a series of Amnesty initiatives related to electroshock technology. Beyond calling for halt of transfers of such devices to places where they have been used for human rights violations in the past, a number of recommendations are made including:

> Suspend the use of equipment whose medical effects are not fully known, pending the outcome of a rigorous and independent inquiry into its effects &. International transfers should be suspended pending the results of the inquiry.
>
> Conduct an independent and rigorous review of the use of equipment where its use in practice has revealed a substantial risk of abuse or unwarranted injury. Suspend the transfer of such equipment to other countries pending the results of the review.
>
> Introduce strict guidelines on the use of police and security equipment [and set] up adequate monitoring mechanisms to keep the guidelines under review and to ensure they are adhered to (Amnesty International 2001:51).

As an organization, Amnesty seeks a legal-rationalistic basis for authority, one that strives for a definitive assessment of the effects and use of technology. While the subjective expressions of fear, humiliation, and pain for those targeted are acknowledged, as an organization Amnesty strives for a definitive basis for evaluation.

The call for the control of electroshock technology and other equipment on the basis of definitive assessments and strict guidelines is tension-ridden and perhaps debilitating. There are a variety of problems faced by social movements that seek to draw on legal-rational evidence as a means of establishing their authority (see Yearley 1992). At a basic level there are the practical problems, such as the limited hope that analysis can provide quick and unequivocal judgments. At best, resolving the medical effects of a wide range of technologies across varied populations is going to be slow and expensive. However, this might not necessarily be a problem for movements if they can enlist support for precautionary strategies. In situations where technology is already in circulation though (such as in much of the US), the possibility for removing all products till the 'facts of the matter' are established seems remote. That there is generally little support for research into the effects of non-lethal weapons outside of those state agencies and firms typically promoting them further complications appeals to 'science'. Perhaps more importantly for human rights organizations, in seeking a generalizable definitive basis for assessment constituted by medical studies, there is little space for the subjective experiences of victims (and users) as a basis for its recommendations.

The related call from Amnesty to suspend the trade of electroshock equipment to countries where there are substantial allegations or evidence of abuse until the facts of matter are established is also highly problematic. As explored below, there are pressing problems regarding how such information can be obtained, presented and interpreted. In addition, some level of abuse takes place nearly everywhere electroshock is utilized. The basis for determining what constitutes a 'substantial' risk is less than obvious. Groups such as Amnesty do not have the resources to make in-depth studies of many security forces. While much of Amnesty's general human rights work and some of its electroshock research centres on countries regarded by many in the West as persistent human rights abusers, some of the most wide scale uses and well documented abuses of electroshock technology have taken place in the US. While calling for an end to transfer to the former is relatively unproblematic, in the case of the latter the presumptions of wide scale abuse are less easily secured. Likewise labelling ill treatment and excessive force in the US as 'torture' is recognized as problematic both publicly (Mecklin 1996) and privately within Amnesty.

The limitations of assessments are bound up with practical concerns about gaining attention to the use of electroshock and other technologies. Groups such as Amnesty must grapple with the tension of how to make generalized claims that provide a credible basis for reform while noting the variations in the effects of technology depending on the particulars of situations. This is reflected in debates within the group witnessed by the author regarding whether it is best to call for an outright ban of certain equipment or to call for legal-rational type reviews. While the latter might be prudent because it could acknowledge the relational and situational concerns, it is arguably less likely to capture

the media and public's imagination. There are additional problems. As expressed in the main text of many Amnesty documents and the debates within the movement this author has been a party to, the concerns for many in the development of new forms of weapons and equipment is not restricted to the safety of particular devices or the abuses of them in certain places, but instead relate to the 'industrialization' of human right abuses and where such a process might lead. While the wider structural concerns about the creation of new industries do not manifest themselves in the types of recommendations offered, it is arguably a wide spread anxiety. Finally, those within the movement are more than aware of the limitations of their own knowledge about the effects of this technology in light of the lack of research and the difficulty of gathering evidence. Given the recognized potential for non-lethals to reduce levels of injury and pain, the deficiencies in information are particularly troubling. What such strategic considerations might mean for alternative models of analysis will be considered later in the paper, particular in relation to further issues to be raised about Amnesty's ability to make use of evidence.

This section has surveyed something of the alternative accounts made of electroshock technology. The portrayals of these devices range from tools of minimum harm to ideal instruments of torture. Both proponents and detractors marshal selective evidence to craft definitive characterizations of technology. Both claim a rationalistic basis of legitimacy. Both are caught with tension of how to make general claims in support of one reading of this technology while responding to incidents and factors that complicate such claims. Arguably crucial issues are being suppressed or privileged in particular readings. Finally, both fail to acknowledge the conditions and contingencies under which knowledge claims are produced. The statements given for the consumption of targeted audiences belie the conditions under which 'facts' emerge. Much of this section has been restricted to commenting on the abstract capacities attributed to electroshock technology. To fully see the importance and implications of these general commitments it is necessary to consider how they manifest themselves in a particular case.

MARICOPA COUNTY JAILS

This section takes as its topic a recent major non-lethals initiative in the US. Although some non-lethal weapons such as chemical irritants have been widely available in US prisons and jails for some time, at most they have been distributed to senior command officers. For advocates of the technology, this situation was quite limiting. Starting in 1994, the National Institutes of Justice and the National Sheriffs' Association funded the provision of non-lethal stun guns and pepper sprays to all detention officers in Maricopa County, Arizona jails. The sheriff of the County, Joe Arpaio, was highly optimistic of the potential of this pilot study:

> The Maricopa County Sheriff's Office is all but abandoning physical force as the primary way to restrain unruly prisoners and instead will rely on non-lethal pepper sprays and stun devices that promise reduced injuries to both lawmen and criminals &when suspects or jail inmates refuse to respond peacefully to lawful instructions, the pepper spray or stun device certainly is more efficient and humane than heavy physical force (Arpaio 1994).

Non-lethals were to be used early and fairly frequently in conflict situations, even where inmates only passively resisted officers' commands. As an alpha test site for the widespread use of non-lethals, the Office recognized the initiative would 'undoubtedly attract national attention, and presumably influence decision making in many Sheriffs' Departments' (Quoted from Sullivan 1997: 15).

Maricopa County Sheriff's Office (MCSO) operates the jail system that serves Phoenix, Arizona and the surrounding area. The jail system includes short term (i.e., up to a year) holds and a central 'Intake' facility for individuals on very short term sentences and those awaiting trial. MCSO has gained national and international notoriety in recent years because of its hard line stance on the treatment of prisoners and inmates. Sheriff Joe Arpaio goes by the title of 'America's Toughest Sheriff'. This image for toughness is actively encouraged. As *promotional* material by the MCSO (2001) states, '[n]o other detention facility in the country, state or county, can boast of 1200 convicts in tents; no other county or state facility can boast of a gleaning program that results in costs of under 45 cents per meal per inmate; few others can say they have women in tents or on chain gangs &'. Other activities include the provision of old-style black and white inmate strips and issuing of pink underwear. With the spotlight that has followed such measures, numerous allegations of corruption, the misuse of force, and other wrong doings by the MCSO have been made.

The introduction of non-lethals in Maricopa County jails is not only of interest because of the unprecedented deployment of non-lethals. In part due to allegations of wrongdoing the US Department of Justice (DoJ) and Amnesty International have undertaken their own investigations of the jails. Compared to other social institutions, prisons are relatively closed in terms of the reporting of their activities, especially as it relates to the use of force. The alternative accounts on offer regarding activities in Maricopa County jails provide a fairly unique case for examining the claims and counter-claims surrounding non-lethals.

Arizona State University

As part of the pilot, criminologists at Arizona State University undertook an official relatively in-depth evaluation study covering the time from the introduction in 1994 to 1996 (Hepburn, Griffin and Petrocelli 1997). Published in September 1997, the report draws on a number of key sources: altercation forms specifically introduced for the pilot that were supposed to be filled in after every use of force incident, three longitudinal surveys of all detention officers, and selected interviews. From the start the remit of the analysis was limited. As the authors state, it 'does not attempt to address questions pertaining to whether the use of force in any particular situation is appropriate or inappropriate' and not whether it is within the official guidelines. 'Instead we focus our analysis on whether the use of non-lethal weapons achieved the desired outcomes of more effectively controlling inmates while also reducing injuries to officers and inmates' (*ibid.*: 8).

On the basis of this data the authors construct a diverse array of graphs, charts and correlations meant to provide conclusive indicators of the merits of non-lethals. The

overall story told is one of officers moving from having 'serious reservations' about non-lethals to being gradually convinced of their utility. Other main findings in relation to electroshock weapons include:

* Nonlethal weapons have become an integral tool in the officers' response to altercations with inmates. Nonlethal weapons appear to be appropriate for nearly two-thirds of all altercations, and they were used in nearly half of all altercations. Further support for the importance of the weapons is found in the fact that nearly half of all uses of the weapon require only a display or threat and not an actual application to the inmate.
* The stun device was quickly adopted and frequently used in altercations. Appropriate for most situations, the stun gun was used in more than half of all altercations &(*ibid*: 52).

There are reasons for doubting the robustness of these findings. Evidence reported in the main text does not necessarily support these conclusions. For instance, at the start of the pilot, the authors stated that 83.1 percent of officers believed non-lethals would reduce injuries to officers. That percentage remained at roughly that level throughout the pilot (*ibid*.). The percentage of officers that agreed stun devices are frequently or always needed and officers' belief that the availability of weapons would affect inmate misconduct both slightly declined over the course of the pilot. In general, little data was gathered on the types of injuries or their severity, this despite several high profile injuries during the study (see below). Nor was the report able to determine that assaults on officers were reduced, despite MCSO staff claiming altercations reduced since start of non-lethal trials (Amnesty International 1997). Depending on one's starting position, hype rather than experience appears to have been a key part of the assessments made. So, Hepburn, Griffin and Petrocelli (1997: 31) found in the central Intake facility that '[half] of all officers responding to the third survey in 1996 stated that the pepper spray and the stun devices were frequently or always needed &This is a rather strong endorsement of non-lethal weapons, especially in light of the fact that the pepper spray or foam was virtually never actually used within Intake'.

With a central focus regarding the effectiveness determination of users, the report makes little room for the views of the recipients of this technology. Possibly questionable applications were determined through prisoners filing grievance forms against officers. Despite claims not to comment on the appropriateness of particular uses of force, the authors took the lack of rise in grievance claims by inmates during the pilot as evidence that 'the officers did not use, or abuse, the weapons excessively' (*ibid*.: 45).

While various further critical points can be brought up about specific claims made in the report, perhaps the most substantial deficiency of the study was its lack of consideration of itslimitations and underlying contingencies. For instance, the appropriateness of the grievance procedures as an indicator of abuse practices could be called into question. Between 1993 and 1996 there was only one grievance filed at the Intake facility, this despite numerous injuries and allegation of abuse outside of the grievance system. Nor does the study drawn attention to the implications of investigations into allegations of

excessive force by the DoJ taking place during the same time (see below). The first phase of the DoJ investigation started in August 1995 and culminating in a letter to the Jails' Board of Supervisors in March 1996. Hepburn, Griffin and Petrocelli noted a substantial decrease in altercation reports after the federal investigation began in 1995. Regarding this, they simply state: 'The sudden decrease in reported altercations in August 1995 suggests that these events affected either: (1) the number of incidents in which force was used or threatened or (2) the likelihood that an altercation form would be completed following a use-of-force incident, or (3) both' (Heburn et al. 1995: 6). No further implications are drawn out regarding the validity of altercation reports. Furthermore, the DoJ investigations had major implications for the use of force guidelines. Eventually due to investigations and allegations of excessive force, pepper sprays and stun guns moved from options for passive inmate resistance to ones not justified for passive or active resistance. While these developments were noted, in no way does the study attempt to relate these to perceptions of effectiveness, officer's attitudes, or grievances filed. Instead, non-lethals were given the general all clear. These limitations have not stopped other NIJ sponsored authors such as Smith and Alpert (2000) from quoting bald figures about optimistic findings of officer satisfaction.

Amnesty International

After receiving numerous allegations of excessive force, in June 1997 Amnesty International visited Maricopa County jails. In August of that year it launched a report about ill treatment covering a number of aspects of the jails including use of stun weapons and pepper spray. Amnesty drew on the 1996 summary of findings of the DoJ that concluded the ease of availability of weapons was a substantial problem that led to unconstitutional conditions (DoJ 1996). Various prominent allegations were listed in a literal way. Typical of this fashion of reporting is the following:

> One example is the case of Richard Post, a paraplegic who was admitted to the jail in a wheelchair in March 1996 and alleges that he was placed in an isolation cell for an hour without medical attention, despite asking for a catheter so that he could empty his bladder. He tried to seek attention by banging on the cell window and eventually blocked the toilet in the cell, causing water to seep under the door. Detention officers then removed him from his wheelchair and strapped him into a four-point restraint chair, with his arms pulled down towards his ankles and padlocked, and his legs secured in metal shackles. He claims that straps attached to the chair behind his shoulders were tightened round his chest and neck so that his shoulders were strained backwards, and that one guard placed his foot on the chair and deliberately yanked on the strap as hard as he could. It is further alleged that an officer threatened him with a stun gun while he was immobilized in the chair, while other officers looked on. For the first hour that he was in the chair he was denied the gel cushion he had with him, with the result that severe decubitus ulcers developed around his anus. The manner of his restraint is reported to have caused compression of his spine and nerve damage to his spinal cord and neck, resulting in significant loss of upper body mobility. Although no use of force report appears to

> have been made in this case, an internal inquiry was held after his mother complained about his treatment. The sergeant who took the decision to place Richard Post in the restraint chair said that this was done for his own safety as he had been banging on the cell window threatening to harm himself.

As reported in this way, specific allegations of abuses consist of a litany of actions that appear incomprehensible. Neither in this example nor in the report as a whole were references made to the overall situational issues regarding the 'get tough' culture of MCSO or wider corruption allegations. Some reference was made about the deficient surveillance procedures in place. By and large, the text adopts a legalistic language to describe individual wronged in particular situations. Furthermore, almost no reference was made to possible limitations stemming from how this information was gathered and the implications of this besides a one sentence footnote that states Amnesty was not allowed to speak with inmates during its visit. Consistent with the search for definitive assessments of particular situations mentioned above, Amnesty recommended MCSO conduct stringent reviews of allegations of misuse of stun guns and reassess the use of force policy. What it would take for such actions to be credible for Amnesty was not specified.

Department of Justice Investigations

One month after the release of Arizona State University report and two months after the Amnesty report, in October 1997 the DoJ came to a final agreement with Maricopa County Jails. This was a result of a two-year, two-phase investigation of the jails (DoJ 1997). As mentioned above, the initial phase started in August 1995 and served as the basis of 1996 summary letter to the Board of Supervisors, while the second phase began in early 1997. Several measures of the settlement were relevant to non-lethals, including:

* Implementing the Jail's new policy restricting the use of non-lethal weapons such as stun guns and pepper spray;
* Continuing implementation of a Use of Force committee to review all allegations of the use of excessive force and restraints;
* Changing the Jail's grievance system to make it easier to file excessive force and restraints complaints, and changing the way in which resulting investigations are conducted.

From these general settlement statements, it is difficult to gauge the extent of the problem or to determine the evidential basis on which such measures derive. In order to get a sense of the basis on which this agreement was made, I applied to get a copy of the full version of initial DoJ study under US Freedom of Information Act. Eugene Miller (1996) conducted the first investigation. It drew on data collected from inspection tours, formal and informal interviews with prison staff, interviews with pre-selected and random inmates, 'Use of Force' reports, as well as various internal documentation and video footage. Miller was highly critical of the use of non-lethals and found a pattern of excessive force within the jails. He made a series of statements about the way allegations were handled: the procedures were not independent or robust, complainants were not often interviewed, the extent of allegations were not monitored, and the altercation form

introduced as part of the Arizona State University study was said to be a mere checklist and 'particularly uninformative'.

Miller located the problems associated with force in series of conditions in the jails. Many detention officers were young and inexperienced and there was a general understaffing due to the recent boom in the jail populations. In this situation, Miller argues, officers felt unduly threatened. Rather than the extending the capabilities of individual officers, the stun guns and pepper sprays served more as substitutions for missing staff. As with so much surrounding non-lethals and the use of force, the 'facts of the matter' were highly disputed. The initial report is written in a claims-counterclaims format that juxtaposed Miller's claims with responses from MCSO. For instance, he contends there were:

> &numerous instances of questionable or apparently inappropriate use of non-lethal weapons. An incident that illustrates the danger of all detention officers to have non-lethal weapons was brought to my attention by a senior staff member: An 18 year-old detention officer on his last day on the job decided to use his stun gun on an inmate just to see how it would work.
>
> RESPONSE [from MCSO]: The writer states there were numerous instances of questionable or inappropriate use of non-lethal weapons but does not provide specific so these can be addressed. If the investigative team had brought these allegations to the attention of the appropriate Division Commander at the time they witnessed them, it would have been far easier to provide a reply (Miller 1996:7-8).

MCSO went on to add it had no knowledge of the specifics of case mentioned and, in fact, during the time period under question no 18 year-old officers finished his last day on the job. The Office refuted Miller's allegations, claiming they were based on inaccurate or incomplete information. MSCO cited a new tough disciplinary program to combat excessive use of force. The Office insisted 'the program has worked exceptionally well. The officers realize the non-lethal weapons must be used judiciously within detention setting. We have found the use of non-lethal weapons, as an alternative to hands on force, is reducing the number of injuries to both staff and inmates' (Miller 1996: 6).

On the basis of this commentary from the MSCO, between March-April 1997 another examiner, George Sullivan, was appointed to conduct a second review. Like Miller, Sullivan (1997) based his claims on various MSCO documentary evidence as well as staff and prisoner interviews. Like Miller, Sullivan found that the use of force by officers was often unnecessary, excessive and unprovoked. Finally, like Miller, he found the staff divided about the wisdom of the widespread introduction of non-lethals. Certain jail staff were said to have 'looked the other way' to excessive force instances and there was a lack of proper supervision of detention staff.

Sullivan's major concerns rested with the liberal use of force policy in the jails, the continuing inadequacies of the inmate complaints procedure which had produced a 'chill

factor' in making allegations, the low staffing and the general 'get tough' approach within Maricopa jails. The issuing to officers of military-style uniforms, the distribution of non-lethals, and the provision of special inmate uniforms fostered a general climate in the jails that was 'regrettable'.

Further incriminations

Although the Sullivan report was completed on May 14, 1997, it is was not published until January 1998, several months after Amnesty International's visit to Maricopa County. Amnesty later revisited the use of electroshock technologies in jails in October 2000 as part of a campaign into human rights abuses in the US. A report by the organization (Amnesty International 2000) criticized the work of Hepburn, Griffin and Petrocelli by saying it was 'largely inconclusive and based on self-reporting'. Yet, in other ways, the conclusions were taken for granted. Amnesty repeated claims made by the Arizona academics that non-lethals weapons grew in acceptance among officers during the trials. Consistent with the statements made above, the focus again is on documenting human rights violations rather than drawing attention to staffing issues or the 'culture' within jails. The major relevant recommendation made in the 2000 report was to:

> suspend the manufacture, use, promotion and transfer (both within and from the USA) of all other electro-shock weapons, such as stun guns, stun shields and tasers, pending the outcome of a rigorous, independent and impartial inquiry into the use and effects of the equipment. This inquiry should assess their medical and other effects in terms of international human rights standards regulating the treatment of prisoners and use of force; the inquiry should examine all known cases of deaths and injury resulting from the use of such weapons. The results of such an inquiry should be made public without delay (*ibid*.: 45).

Once again the call is for definitive evidence, even in light of the obviously disputed nature of any such claims mentioned above and the general difficulty of accumulating evidence about jail practices.

The narrative account and preoccupations adopted by Amnesty differ significantly from that of others who are critical of the jails. Investigative reports of the jails take the persistent difficulties of obtaining information as a basis for critique. For instance, in the case of Richard Post described above, Ortega (1999a) details the alternative accounts between the Post and detention officers, the alleged selective, doctored and delayed release of video tapes of that night, and the limitations of video images alone to resolve questions about verbal abuses and threats. Allegations of cover-ups, the withholding of evidence, and the illegal destruction of evidence have been made in relation to other cases (Maximum Films 2001). Against this backdrop, Sheriff Joe consistently exonerated officers and boasted he has not changed use of force practices since the DoJ settlement (Ortega 1999b).

Lessons learnt from prison

Much fanfare surrounded the pilot study in Maricopa County jails. Arguably, the initiative has not worked out as originally planned. It is not my purpose here however to adjudicate between the validity of alternative claims outlined above or to add yet another account of what might have happened. No doubt some may be considered more plausible than others on the basis of particular criteria.

Rather the juxtaposition of alternative assessments highlights the importance of what is taken to count as evidence and who has access to such information. Accounts of excessive force are disputed on the basis of evidence, the source of evidence, the interpretation of incidents, the accuracy of descriptions and the up-to-datedness of information. There are significant problems of authority and legitimacy of claims where control over knowledge is contextual, equivocal, and transitory. One way this is managed is by the constant disjuncture between the way knowledge is produced and the statements that are made by organizations. Alternative accounts are attempts to construct a story that gives a partial account of reality beholden to particular standards of evidence. MSCO seeks to ensure assessments are based on detailed (and insider) knowledge surrounding abuses or jail procedures, when access to such information is clearly limited. Amnesty seeks to maintain a legalistic approach to justify credibility of its claims even in light of the unrealisticness of this as a basis to settle disputes.

These deficiencies in different accounts identified above give an indication of the institutional-power relations which support such arguments and which are intended to legitimate the views of the organizations involved. The accounts are perhaps best characterised as what Altheide and Johnson (1980) refer to as 'bureaucratic propaganda': evaluative stories appealing to rationalistic forms of argumentation and targeted for audiences who do not have access to the production and editing processes that constitute them. Such accounts present 'contrived, managed, and essentially decontextualised pictures of their respective portions of social life' (*ibid.*: 18). Alternative accounts lead to alternative attributions of the problem, and the role of technology within conflict situations, and the proper context for making sense of these issues.

THE NEED FOR REFRAMING CRITIQUE

In the play of secrecy and disclosure that characterizes the case of Maricopa County jails and electroshock non-lethal weaponry in general, there are significant differences in the descriptions of the technology on offer and its moral standing in relation to assessments of the appropriateness of force. As with so many other topics, the central issues at stake concern how those crafting stories orientate themselves to claims about truth, knowledge, and meaning. What by way of conclusions though do the preceding sections illustrate about the avenues for counter-expertise?

Non-lethals are supposed to be means of minimizing controversy surrounding the use of force through the application of minimum force. But as is clear from the discussion

above, attempts to legitimate intervention through such weapons are hotly disputed. Whereas Hepburn et al. (1997) favourably reported stun guns were perceived by detention officers as bestowing them with greater control and authority as well as instilling fear into inmates, such findings take on wholly different implications for others. The pursuit of quantification offers little hope for resolving such disputes. As with many other controversial areas, what sustains the argument is more than the clarification of the facts or the lack of robust indicators. As such, in examining the technology we need to do much more than search for the latest empirical evidence, but instead ask basic questions about the framing given to technology.

The problem arises then of what alternative bases of analysis can be offered to move the discussion beyond the facades of statistics or the selective accounts typically on offer. Especially given the concerns of this paper, what might be said for critical analyses? Are sceptics of the technology simply left to marshal evidence for a particular kind of evaluation? Is there a method of analysing that provides a basis for critique while perhaps enabling a further understanding the possible implications of the technology? Might this approach offer generic insights into the study of technology and expertise?

The preceding section outlined how groups such as Amnesty International who are at the forefront of campaigns regarding electroshock technologies struggle with the limits of calling for definitive evidence regarding their use and effects. The striving for definitive evidence creates a disjuncture between the manner in which accounts and evidence are presented for public consumption and the basis on which data is collected and interpreted. Like many social movements, time, resource and access limitations mean the group is by-and-large reliant on operational evidence obtained and presented by actors close to or within those organizations under scrutiny. Yet it is apparent that official statements, medical evaluations and industry sanctioned reviews are a questionable basis for analysis. Without acknowledging the limitations that stem from relying on such studies, it seems quite likely the basis of critique will be curtailed. Had the DoJ not provided another set of interpretations regarding activities in Maricopa jails, for instance, much of the knowledge basis about the overall success of the pilot program would have centred on the Arizona State study. While the failure to draw attention to the conditions of knowledge production is in some sense understandable, it leads to accounts where arguably key aspects of the assessment process are suppressed in favour of a convenient storyline.

In situations of limited information, advocacy groups may decide that a pragmatic strategy for questioning technology is by selectively drawing on expertise to render alternative readings than those offered by proponents (Nelkin 1995). Yet within Amnesty International, for instance, there is a recognition that there have been and are likely to be few cases where enough definitive evidence can be offered to call for outright bans of technology (Wright 2001).

The need for alternative framings is likely to be more pronounced in the future. There is the continuing attempt by proponents to engineer an enhanced moral standing into non-lethals. For instance, to increase the likelihood of arrest should the weapons fail into

criminal hands, TASER International recently has developed system for dispersing small identification tags from its weapons when they are fired. Each TASER has an individual identification number on the tags and records on the personal details of purchasers are supposed to be recorded through manufacturer-retailer links. In addition, the New Advanced TASER has a modification undertaken to minimize claims about its potential for abuse. An onboard computer records the time and date of every firing so that police agencies can monitor usage patterns. Traditionally, Amnesty and other critical groups have been silent on the merits of such modifications, though they are central to the current promotion to the technology. The question arises of how might it be able to respond to such issues.

Richard Wilson provides a useful starting point. In surveying the general limitations of human rights discourse, he suggested that '[o]nce it is recognized that all narratives are the result of artifice and design, then rather than hide any reference to this process, it might be preferable to place the interpretative filter in the foreground of the account, to convey something of the conditions in which knowledge is formulated and represented' (Wilson 1997: 152). He called for greater 'contextualization' of reporting, whereby human right organizations incorporate more of the wider social, economic and political context in which human rights violations take place as well the subjective meanings attributed to acts of violence. Because human rights organizations target audiences outside of government or legal spheres, such a movement would have pragmatic as well as epistemological justifications. While the preceding discussion supports the general sentiment behind Wilson's suggestion, there are important questions about what this would mean in detail, the status of the 'context' in question, and what this greater contextualization would mean for our understanding of the role of technology in claims about human rights abuses.

REFLEXIVITY AS A STRATEGY FOR CRITIQUE

This section outlines the possibility for an alternative basis for the assessment of non-lethals, one that acknowledges the need and potential for reflexive analyses of the conditions of knowledge production within critiques. Just as Amnesty struggles between modes of critique that provide contextualised accounts versus legalistic descriptions, so too is the extent of attention to the conditions of knowledge production a difficult matter. NGOs such as Amnesty sometimes do acknowledge the limitations to their basis for making claims, though this is done typically only in passing. Moreover, the issues are just discussed in a general manner and not tied to the evaluation of technology, nor are they treated in a manner that challenges calls for establishing definitive effects.

The argument here is that critical analysis could usefully place more emphasis on examining the basis of claims about technology, rather than relegating such issues to footnotes or refraining from talking about them altogether. Accounts of non-lethal weapons are attempts to impose ethical narratives regarding the relation between technology and social actors. Rather than placing their emphasis on an empiricist rationality, those doubtful of the merits of non-lethals could usefully draw attention to

those conditions necessary to determine that technologies contribute to an intervention in the way specified. This would entail the step of taking the claims made about technology, or more precisely the basis of such claims, as a topic of analysis. In other words, the presumptions underlying accounts of the operation of this technology could be examined by displaying the effort necessary to confidently interpret the possibilities for non-lethals operating in prescribed ways. The sceptical and reflexive approach advocated here would start by asking how it is possible to be assured about the ability of the use of non-lethals to accomplish discerning effects, both in terms of the realisticness of this in practice as well as publicness of the information necessary to make such assessments. This approach could go beyond just reflecting on the conditions of knowledge production by questioning the status technology and the suitability of forms of critique through an elaboration of the conditions of knowledge production.

As discussed above, while there may be some evidence that the electroshock devices are relatively safe, this is highly conditional and equivocal. In any case, the technologies in question are just one part of materially heterogeneous processes. In practice, reaching a confident conclusion regarding the benign status of force intervention through non-lethal weapons requires a number of inter-dependent aspects function as advertised or presumed: the robustness of the initial scientific and medical evaluations, the rigorousness of the training procedures in place, the adherence to restrictions regarding situations of use, the perceptions of users regarding the utility and dangers of non-lethals, the functioning of systems for tracking situations of use and likely implications of technology, the thoroughness of the monitoring procedures for complaints procedures, the controls set proliferation, etc. The overall merits regarding the introduction of a technology as well as the likely source for attributing casual force in particular accounts will depend on the inter-connections of these aspects. The procedures in place need to be thought of as systems where important issues hinge around how ambiguities are managed and where they are distributed (Rappert 2001).

Key questions exist about how able and how open those deploying non-lethal weapons are in making connection between the explanation and the elements to be explained. Throughout this paper various critical points have been raised about the possibility of making this connection. For instance, in the case of Maricopa County jails, claims about the rate of injuries sustained from non-lethals are open to question given the repeated claims about inadequate medical facilities for inmates (DoJ 1999). While not suggesting those who have undertaken reviews have misled, acted dishonestly or in 'bad faith', in general, considerable grounds have been offered for doubting the claims made about non-lethals. Analyses have been based on questionable evidence, dubious monitoring procedures, highly optimistic assumptions and a fair bit of promotional hype. There is little support for research into the effects of non-lethal weapons outside of those state agencies and firms typically promoting them. Such points tend to be lost in the search for definitive facts, but these are central to critiques that acknowledge the conditions of knowledge production.

While some extent of uncontrollability, unpredictability and uncertainty always exists with technology, questions can be asked whether at a basic level the conditions are in

place that would enable both those close and those removed from the deployment of non-lethal weapons to be able to assess the issues at stake. As non-lethals are part and parcel of attempts to legitimate the use force to audiences outside of user communities, the claims regarding their benign force qualities must be available for scrutiny. A concern is whether such conditions exist or whether they are even acknowledged. It is clear from the discussion above that those using the technology have difficulty sustaining their claims, let alone enabling others to be confident in them. In other words, there are pressing questions about the conditions necessary for non-lethals to operate in the prescribe manners presented as well as whether organizations are in a position to know whether they are functioning as advertised. Clarifying the basis for assessments about the normative standing of the technology provides a vehicle for description and critique while remaining somewhat open about the specific character of the accounts presented.

When approached in this manner, statements regarding the effects of these technologies are always provisional and open for question. Because the situations involving the use of non-lethal weapons are ambiguous the debate should not be stifled and the potential inter-relation of various aspects should be opened up as widely as possible. The capabilities accorded to technology and its manner of use are bound up with acts of interpretation. It is because the implications do not follow neatly from its definite capacities that questions need to be asked about how the capacities of technology are established and what this means for their evaluation (Grint and Woolgar 1997). Therefore, those deploying such technology can be assessed regarding whether or not the conditions are in place for the continued (re-) interpretation of accounts rather than merely seeking the resolution of discussion. Representations of this technology are arguable more powerful when they are able to make explicit the connections between various aspects of the technology and the work necessary to substantiate these in practice.

When one shifts attention from asking for the facts of the matter to be resolved to acknowledge the likely endemic character of disputes and the need to be aware of the inter-connectivity of conditions in the operation of technology, the possibilities of substantiating the benefits of technology become more difficult to maintain than simply asserting a judgment about the legitimacy of their use in particular instances. Clearly abstract statements about benign effects of technology become questionable. The robustness of modifications made to particular non-lethals, such as those discussed in the last section for TASERs, are open to question through this sort of logic as well because their viability in practice relies on a set of conditions (e.g. regarding the monitoring of the use of force) that are arguably rarely met.

Once attention is given to the constituted character of technology what is needed is not just a greater 'contextualization' of accounts that Wilson called for, but also an acknowledgement that the technology and its context are defined in relation to one another and mutually constituting. As suggested in the case of Maricopa County jails, what counts as the relevant context for assessment is in itself an important question whose answer can lead to alternative recommendations. A sceptical orientation requires being sensitive to alternative meanings given to technology and context. Herein the

ambiguities over the capacity of technology, the nature of its user, the relation between device and user are matters that must be resolved in accounts. How this is done is worth considering. The attempt by proponents and detractors to locate the overall merits of technological interventions at key sites such as the abstracted effects of weapons or the intent of officers obscures the constitutive function of the 'situational' and 'contextual' aspects 'surrounding' the technology and a consideration of what those contingent aspects should be for the sake of analysis.

Acknowledging such considerations provides a vehicle for including a wider range of issues into assessments than Amnesty and such organisations currently do. For instance, following Wilson's general suggestion, the subjective experiences and conceptions of technology can become key issues in critique. The perceptions made of technology are bound up with representations and persuasive argumentation. In the case of Maricopa County jails, there is some indication from the start that highly enthusiastic and heavily promoted statements were made regarding the effectiveness and benign effects of non-lethal technology. Such an endorsement raises questions about subsequent use patterns. The general 'get tough' rhetoric surrounding policing in the jails and the heightened feelings of threat given staffing problems are at least potentially important factors in making assessments about weapons. Although Amnesty has noted, say, the inability of users of electroshock weapons to gauge the pain they are inflicting, such considerations are marginal to the main accounts. While an avoidance of these issues might make pragmatic sense in situations where there is a relatively clear and patterned set of atrocities being perpetrated, it is arguably a liability in substantiating criticism for the types of disputed situations discussed in this paper. Proponents of non-lethals tend to monopolise the perspectives of users as source of legitimacy. Given the uncertainties and unknowns associated with the use of the technology, the lack of evidence about long term effects, and the extent of promotional propaganda though, the perspectives of users can be a source of criticism. Although the evidential status of perceptions is highly contestable, such perceptions can still be part of an assessment and critique of the merits of particular intervention strategies. Such points are all grist to a reflexive mill for highly proscriptive technologies such as non-lethals. While these issues have little place in search for definitive facts or legalistic forms of argumentation, they are arguably important.

The type of analysis advocated here would provide a more differentiated albeit less straightforward basis for analysis. Rather than placing emphasis on making sweeping statements about the definite and abstract functions and implications of particular technologies, critical claims could interrogate the likelihood of non-lethal technology fitting into wider socio-technical relations. Key themes in critical claims would centre on matters of trust, past practices of security forces and related technology assessors as well as the conditionalities associated with technology. The specific nature of critique could not be established in general manner, applicable to all cases. Refraining from generic claims would not be such a loss as critics of technology are rarely in a position where they feel confident in substantiating broad claims to members, let only confident of convincing others of their merits. Arguably the points raised above would not only provide a new basis for critique, but also open up a wider understanding of the

implications of technology. For the particular substantive topic addressed in this paper, this might mean sceptics acknowledging some of the benefits of non-lethals more explicitly, but with this would come a further elaboration of the conditionalities and contingencies underlying promises. The use of a reflexive and contingent commentary would undermine a strictly scientific-rationalistic basis of legitimacy without completely undermining a basis for authority. The power of critique can instead derive from the applicability and coherence of knowledge claims as well as providing an alternative framework for re-evaluating claims (Boham 1991).

For those within academia, reflexivity is often treated as merely a source of problems, an unnecessary distraction, or counter productive preoccupation (see Ashmore 1989). Even for those academics engaged in a critical appraisal of their own advocacy-related efforts, the place for reflexive accounts is somewhat limited. Fortun and Cherkasky (1998), for instance, take a somewhat mixed assessment of the ultimate potential of reflexive accounts in countering dominant and traditional objectivist forms of expertise. On the one hand, 'reflexive methodology leads to (and in fact is itself) relevant and constructive politics' (Cherkasky 1998: 262). On the other hand, spaces available for social movements to advance their position are said to not allow the time for reflexivity (Fortun and Cherkasky 1998: 142). In contrast, what I have wanted to illustrate through a detailed analysis of a particular class of technology is that in such spaces often little room exists for anything other than these types of analysis.

As has been argued throughout the paper, the conditions under which analyses are made and the efforts made to advance particular readings are not marginal considerations to the assessments of technology. A reflexive approach to the limitations of one's claims offers a potentially resourceful basis for counter-expertise. Furthermore, this can be a central part of strategy for public engagement, rather than limited to forms of internal self-criticism. While any form of advocacy has its contradictions and can only be evaluated in relation to particular audiences, some modes of representation are better able to deal with problems. Reflexive approaches have the potential for making the basis of knowledge claims more explicit and thereby enabling the active engagement with issues regarding the questionable characterisation of the merits of this technology that many in the public will find troubling. Within such a strategy, the limitations of organisations involved in critically evaluating technology become resources for analysis. Academics concerned about practically engaging with scientific and technological developments through collaboration with advocacy organisations can usefully elaborate reflexive inspired mode of representation as a means of challenging dominant positions as well as questioning their basis of critique.

The approach outlined here is particularly well suited to the study of non-lethal weapons given the aim to build benign intent into the technology. Non-lethals are designed to enact acceptable means for physically controlling individuals. As controversial technologies though, their representations must simultaneously be controlled. The situation faced here is just one fairly explicit case of a wider issue about representation in conditions of uncertainty and disagreement. When considered in this way, the critique of technology outlined here is an instance of a much wider story about how to keep open

interpretation in conditions of asymmetrical knowledge situations. Arguably such considerations are a pervasive aspect of social life.

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