

Forensic architecture

Only the criminal can solve the crime

Eyal Weizman

A strange story unfolded in the shadows of the legal and diplomatic furore that accompanied the release, on 15 September 2009, of Richard Goldstone's *Report of the United Nations Fact Finding Mission on the Gaza Conflict*, which alleged that the Israeli army (and Hamas) committed war crimes, and indeed that Israel might even be guilty of 'crimes against humanity'.¹ On the same day Human Rights Watch (HRW), itself conducting an in-depth analysis of Israel's 2009 attack on Gaza, announced the suspension of its 'expert on battle damage assessment', Marc Garlasco. Garlasco, who had joined HRW's Emergencies Division in 2003 after seven years as an intelligence analyst, 'battle damage assessment expert' and 'targeting specialist' at the Pentagon – involved in targeting in Kosovo, Serbia and Iraq – had since been employed as the organization's in-house military and forensic analyst. His investigations focused largely on the examination of material remnants found in sites of destruction, and on analysis of munitions types and military technology. Providing crucial material evidence for HRW's research on violations in Iraq, Afghanistan, Lebanon, Gaza, Burma and Georgia,² he had, by the time of his suspension, authored and contributed to a series of reports alleging violation of international humanitarian law (IHL) by the Israeli military, in both its Gaza offensive and a string of earlier incidents.³ His research was considered crucial to the Goldstone Report, and is referred to there no fewer than thirty-six times.

About 1,400 people were killed and almost 15,000 buildings were destroyed or damaged in the Gaza attack of December 2008–January 2009 upon which the Goldstone Report was focused.⁴ There is, unsurprisingly, a correlation between these two figures: according to various international reports a large proportion of the deaths occurred within buildings. Indeed, many individuals and families were killed by the flying debris of shuttered concrete and broken glass of what used to be the walls and ceilings of their homes. One person I called in Gaza during the attack

spoke of 'buildings turning from solids to dust, and of the dust of homes filling the air ... people breathing in pulverized building parts'. The built environment became more than just a target or battleground; it was turned into a medium of killing.

When Israel halted its Gaza offensive on 18 January 2009, however, the battle shifted to the legal domain, and, when the dust finally settled, the *way* it settled became itself evidence. Allegations about the Israeli military's deliberate destruction of homes and infrastructure were made and contested using geospatial data, satellite imagery of destroyed buildings, and data gathered in on-site investigations. As much of this research was concerned with 'interrogation' of building rubble, Garlasco's specific expertise was central to his contribution. The emphasis on the investigation of ruins meant that forensic analysis of built structures – what I would like to refer to as a 'forensic architecture' – came to the forefront of the legal–political disputes that ensued. The facts of destruction were of course evident, and it was abundantly clear who had caused it and in what context. However, the investigation was not overtly political so much as technical, and the main questions of analysis were methodological. The forensics experts explored heaps of rubble in order to gather information with regard to how an event unfolded, and, by extension, to determine whether it was legal or illegal according to the framework of *jus in bello* – that is, the laws of war, or, as they are otherwise known today, international humanitarian law (IHL). The ferocity of the debate in this instance meant that not only the forensic analyses but also the analysts themselves came under prolonged scrutiny.

Garlasco's September 2009 suspension was HRW's response to a controversy, precipitated initially by a single blog posting, followed later by a deluge of others, that 'revealed' what had already been in the public domain for years and could be easily found out on the Internet: that Garlasco was a collector of Nazi-era memorabilia, that he had authored a book and

reviewed others (in his own name and on Amazon) about Nazi-era military medals, that he is a regular contributor to several Internet collectors' forums, and that, among thousands of postings, he has expressed unreserved enthusiasm for, and some macabre humour apropos of, Nazi-era memorabilia.⁵ Although a certain obsession with such objects of war is what forensics is all about, pro-Israeli organizations, and spokespersons for the Israeli government itself, claimed Garlasco's enthusiasms revealed him to be a Nazi sympathizer, something that inevitably distorted his analyses. For pro-Israeli critics, Garlasco's interests demonstrated a far more general bias among human rights organization, even, perhaps, constituting an ultimate validation of the general claim that the state's detractors are driven by anti-Semitism. A few weeks previously Ron Dermer, Prime Minister Benjamin Netanyahu's policy director, who had threatened to 'fight back' against the 'attempts by human rights groups to delegitimize Israel', explained that state officials are not 'going to be sitting ducks in a pond for the human rights groups to shoot at ...with impunity', and that the government would 'dedicate time and manpower to combating these groups'. Dermer seized on the Garlasco revelations, calling his interest in Nazi memorabilia 'a new low'.⁶

In heightening this controversy, Israel managed to deflect some attention from its actions in Gaza and elsewhere. But it is important to return to Garlasco's story, for it can, in fact, help us to reflect critically upon the emergent practice of 'forensic architecture' within the changing world of human rights organizations, and indeed more generally on the function and significance of forensics itself. Rather than indexing a certain ingrained bias against Israel, I want to argue, Garlasco's story offers, most importantly, a glimpse into the growing proximity between human rights organizations and the militaries of Western states, Israel's included; a proximity expressed by a shared language, sometimes overlapping aims, and an easy migration of personnel. In order, then, to have this event shed new light on the politics of war crime investigations and human rights, the story of Garlasco and that of 'forensic architecture' will proceed along two entangled narrative paths in what follows: the first will look at the development of a recent epistemic shift through which forensic practices have gradually started to replace the (human) witness in international law investigations; while the second will follow the career path of Garlasco, and the growing proximity of human rights to violence. The 2009 controversy was the result of an inevitable collision between these two.

Before the forum

The 'methodology' section of the Goldstone Report reveals a slight – that is, significant – shift in the investigative approach to human rights abuses. Assuming the reliability of human witnesses in Gaza would inevitably be contested, the authors of the Report opted for an increased emphasis on objects and objectivity. 'The Mission conducted field visits, including investigations of incident sites', the Report reads, accompanied by 'the analysis of video and photographic images ... satellite imagery, and expert analysis of such images, medical reports ... weapons and ammunition remnants... [and interpreted these findings in] meetings with military analysts, medical doctors, legal experts, scientists, etc.'⁷ For someone like Goldstone, who, besides being a 'liberal apartheid judge' and a prosecutor in the International Criminal Tribunal for the former Yugoslavia (ICTY), was known as one of the promoters and defenders of the South African truth and reconciliation committees – the process most identified with the aural testimony of 'witnesses', 'perpetrators' and 'victims' – the shift towards objects of material evidence in this report is telling.⁸

This shift mirrors a more general one within human rights and war crime investigations, and even in political culture at large. The assumption is that, unlike victim testimony, the scientific evidence pronounced by expert witnesses is more difficult to contest legally; that the testimony of 'things' – bullets and missile casing, ruins, medical and autopsy reports, tissues showing the mark of white phosphorous – cannot be undermined by any 'suspect political subjectivity' (which is what some experts of international law presumably think the people of Gaza possess). In discussion around the Report such a shift in emphasis was endlessly reinforced with the cliché that 'the evidence speaks for itself': that an object or the rubble of destroyed buildings cannot be pro-Israeli or pro-Hamas, or be forced to pronounce skewed evidence on behalf of either. The image over the page is perhaps one of the best demonstrations of the performative dimension of contemporary forensics. Goldstone stands in front of the destruction of a tall building. Around him stand members of the government in Gaza, and a bouquet of microphones of international news channels are located in front of him. Since the rubble cannot speak for itself, Goldstone seems to have taken the initiative to speak on the ruin's behalf, interpreting it for the international forum.

In order to shed some light on this alleged shift, it is necessary to trace briefly the history of forensics, especially in its relation to ideas of testimony. Derived



from the Latin *forensis*, the word ‘forensics’ refers to the ‘forum’ and designates the practice and skill of making an argument by using objects before a professional, political or legal gathering. Forensics was a part of rhetoric. However, forensics does not refer to the speech of humans but to that of *objects*. In forensic rhetorics, it is objects that address the forum. This speech of objects needs, of course, ‘translation’ or ‘interpretation’, and Roman orators referred to such speech on behalf of inanimate objects as *prosopopoeia*. In discussing ‘giving a voice to things to which nature has not given a voice’, Quintilian writes of the power of *prosopopoeia* to ‘bring down the gods from heaven, evoke the dead, and give voices to cities and states’.⁹ Figures of speech such as ‘the bones/rubble is speaking to us’ are among the most common examples of this today.¹⁰ Because the thing speaks through, or is ‘ventriloquized’ by, its translator, the object and its translator constitute a necessary and interdependent rhetorical unit. To refute a legal/rhetorical statement it is enough to refute one of the two: to show either that the object is inauthentic or that its interpreter is biased. The latter was the strategy applied against Garlasco and HRW research on Gaza.

That forensics also has its mysterious or dark side is, however, suggested by the fact that in the Middle

Ages the tradition of forensics was kept alive by those known as the ‘devil’s advocates’: an order of experts appointed by the Church to argue against a candidate for sainthood’s canonization in searching for faults or fraud in the objects that were presented as evidence for miracles. Canonization involved the cross-investigation of witnesses and material evidence, but as miracles tended to involve material things like blood drops, wooden details and stone tracings, forensics was tasked with spotting the marks of divine intervention within these earthly objects. The centrality of forensics in the canonization process, when in other juridical processes of the Church it was the voice of the witness that mattered almost exclusively, has continued to provide a model for specific evidentiary and investigative legal practices.¹¹ Yet, in fact, it was not until the beginning of the twentieth century that the investigation and ‘testimony’ of material evidence took its central place next to eyewitness or confessional information.¹² Today, then, when ‘forensics’ refers to the application of scientific techniques to aid the course of legal process, the role of the ‘translator’ is filled by the expert witness and the epistemic frame is that of science. Yet, although science is becoming the most important arbitrator on matters of legal concern, forensics is not *only* about scientific inquiry but also its associated

rhetoric, about science as a tool for persuasion – the way in which a scientific investigation is presented, the techniques and technologies of demonstration, and the methods of theatricality, narrative and dramatization involved.¹³

Within the framework of human rights and international law investigations, the forensic sciences started to assume their distinctive role after the end of the Cold War, when IHL became the primary analytical paradigm for research into conflict. The latter was no longer predicated on investigations of geopolitical interests and historical process so much as on investigation of the excesses of war that were visited on civilians. Extending the frame of criminal law, these usually call for an analysis of complex events that are produced by multiple political and military participants as they are registered on different types of objects and structures. In the context of war crime investigations, forensic practices emerged in the 1990s from within the discipline of forensic anthropology – the application of the science of physical anthropology in legal settings, most often in relation to a victim's remains¹⁴ – and in the crystallization of the newer discipline of forensic archaeology – the application of archaeological principles, techniques and methodologies in the unearthing of evidence of serious crime and violations of human rights. Both disciplines came to prominence during the war crimes investigations relating to the Yugoslavian and Argentine wars of the late 1980s and 1990s respectively. Clyde Snow, one of the 'great gravediggers' of the 1990s – who pioneered the forensic presentation of mass graves and investigated the remains of people from Josef Mengele through J.F. Kennedy to Tutankhamun – refers to his work as 'osteo-biography', saying that the skeleton contains

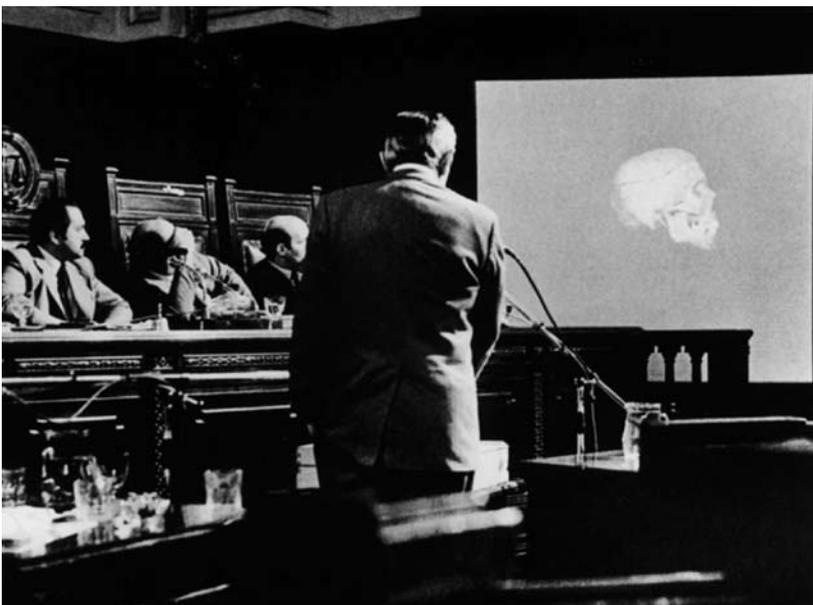
'a brief but very useful and informative biography of an individual ... if you know how to read it'.¹⁵ 'bones make great witnesses, they speak softly but they never forget and they never lie'.¹⁶ In this powerful rhetorical field, the conjunction of bones and ruins makes for a compelling analogy. But if ruins and bones are allowed to speak, is it the case that they can never lie?

The principle of forensics assumes two interrelated sets of spatial relations. The first is a relation between an event and the object in which it is registered. The second is a relation between the object and the construction or the assembly of the forum to which it is addressed, or within which it resonates. Forensics is thus engaged both with the investigation of objects and with the creation of forums. And the order of these two aspects of forensics is uncertain, in so far as it is often the evidence of war crimes that precedes the forum: an international tribunal, for example. Moreover, the forums to which contemporary forensics are addressed are not only the actual spaces of the court; they are often contingent, diffused and networked, created through and by the media, assembled around forensic evidence, and operate across a multiplicity of international institutions.

Spatial forensics

More recently, forensics is also acquiring an architectural dimension.¹⁷ With the progressive urbanization of conflict, representations of the built environment are increasingly called as evidence in international courts, tribunals and the media. Geospatial data and high resolution satellite imagery of destroyed buildings were used at the Eritrea–Ethiopia Claims Commission in The Hague, and in attempts to estimate the extent of displacement in Darfur and the DRC, while the most

common example of such use of architecture is still taking place as part of trials in the International Criminal Tribunal for former Yugoslavia, where fragments of the rubble (and photographs of it) emerged from private homes, gardens and storage sheds, allowing both sides to argue that a different version of events had transpired using the found and alleged rubble as evidence to substantiate their claims.¹⁸ In Palestine, cases relating to the routing of the Wall have also made extensive use of spatial representations. The legal process was consequently conducted with





judges and lawyers poring over maps and physical models.

Forensic experts aspire to transform the built environment from an *illustration* of alleged violations to a source of knowledge, however incomplete, about events: to read from the form and disposition of ruins something of the events that lead to a building's destruction. From the perspective of forensics the ruin has an 'architecture' from which controversial events and political processes can be reconstructed and analysed. Forensic analysts assume that historical events can be reconstructed through structural calculations, blast analysis and a determination of the failure point of structures. It is structural and blast engineers who are thereby writing history today.

Artist and theorist Hito Steyerl has put beautifully the ways in which objects may contain the forces that produced them:

Objects are hieroglyphs in whose dark prism social relations lay congealed and in fragments. They are understood as nodes, in which the tensions of a historical moment materialize in a flash of awareness or twist grotesquely into the commodity fetish. In this perspective, a thing is never just an object, but a fossil in which a constellation of forces are petrified. Things are never just inert objects, passive items, or lifeless shucks, but consist of tensions, forces, hidden powers, all being constantly exchanged.¹⁹

Buildings seem static but, as architectural conservationists know, they are in constant movement; they expand and contract with temperature and with the slow degenerating of materials. Concrete, plaster and other exposed surfaces register transformation in humidity, air quality, salination, and sometimes the abrupt or violent events that happen next to them. Buildings as experienced should be thought of as nothing less than freeze frames in a process of constant formal transformation – diagrams of the forces that shaped them. Any reading of an event must therefore be undertaken against the backdrop of a constantly transforming, mutating and vibrant materiality, even if objects and structures, built or destroyed, do not of course contain *all* the relations that have produced them.²⁰

The shift of emphasis in human rights and war crimes investigations described above has meant that forensic science has begun invading some of the legal and cultural grounds previously reserved for the testimonies of human witnesses. When Shoshana Felman and Dori Laub referred to the last decades of the twentieth century as 'the era of the testimony', and historian Annette Wieviorka 'the era of the witness', they thought of a time, specifically, when the written, recorded, filmed and exhibited testimony of the Holocaust multiplied.²¹ Holocaust, trauma and memory

studies have made testimony a significant force in the culture of recent times, leaving a strong mark in literature, documentary and the visual arts. Politically, testimony has acquired a visible presence in such varied contexts as truth commissions, human rights and humanitarian work. These seem to have saturated the last third of the twentieth century with the voices of historical agents thereafter understood as ‘witnesses’, ‘victims’, ‘survivors’ and ‘perpetrators’.²² The media coverage of conflict from human rights and humanitarian perspectives channelled new forms of witnessing and testimony into film, video and Internet archives. This function of testimony was most strongly identified with anti-totalitarian politics, with the survivor and the dissident, and with the voice of the individual against ‘the arbitrariness of repressive states’. The ‘original mission’ of human rights organizations was, according to a strong polemic by Robert Bernstein, the founding director of HRW – then called Helsinki Watch and engaged mainly with Soviet Bloc dissidents – ‘to pry open closed societies, advocate basic freedoms and support dissenters ... like Andrei Sakharov, Natan Sharansky and those in the Soviet gulag.’²³ Bernstein urged HRW to return to this tradition and strongly opposed investigating Israel’s actions in Gaza.

In a critical account of such positions, Michal Givoni has noted that one of the problems with this form of testimony was that its function was no longer epistemic at all. Too often it was not tasked with revealing knowledge or authenticating claims of historical injustice, but functioned primarily as an ‘ethical’ resource: its function was in being delivered in the first place.²⁴ While personal testimony has brought histories of violence and abuse into the public domain, the limits of the culture of testimony have also become apparent to many other critics, including people in the human rights field. The framework of empathy, compassion and pity tends to portray people as passive and pathetic victims in need of salvation, just as the abstract designation of ‘perpetrator’ and ‘victim’ has depoliticized a deeper understanding of historical processes.²⁵

Dying to speak

Throughout the 1990s a series of ad hoc international tribunals were established for trying the political and military leaders of former Yugoslavia (1993) and Rwanda (1994), followed by the permanent international tribunal of the International Criminal Court (1998) that was imbued with the power to imprison violators of war crimes, and to prosecute crimes against humanity and genocide. This ‘legalization’

of human rights accelerated a shift in the function of testimony from one understood as a public address made through the media, taking an ethical stand on events, to becoming a legal address capable of withstanding cross-examination. The people in the spotlight were no longer the ‘victims’ – civilians who bore the brunt of brutal wars – but the militants and politicians that caused it. This also implied a shift from testimony to evidence, from speech to medical data, and sometimes from the account of living people to the testimony of forensic anthropologists on behalf of bones and dead bodies. The latter has become a kind of testimony without witness, a phenomenon that could give another, rather twisted, meaning to the ambition of those promoters of the ethics of testimony’s capacity to ‘give a voice to the voiceless’.

The difference between a witness and a piece of evidence is that evidence is *presented* while a witness is *interrogated*. However, the legal process already tends to blur this distinction when it demands that the witness approximates objectivity by assuming a pose of neutrality, while the presentation of evidence for cross-examination and interrogation seems to have granted the object some traits of subjectivity.²⁶ Potentially, therefore, new ways of using forensic sciences have blurred a previously held distinction: between evidence, when the law speaks of objects, and that of the witness, referring to human testimony. The category of the ‘object witness’ might be the right term to describe the ground between this object–subject divide.²⁷ If material evidence is conceptually understood, technically unveiled, and legally acknowledged as capable of some kind of ‘speech’, then it too might be interrogated and cross-examined – and, of course, through its ‘interpreter’, it might also sometimes ‘lie’. Rather than operating as the mechanical materialization of time, or the conclusive, transparent and objective apparatus of truth claims, forensics is inclined towards complex, sometimes unstable, even contradictory accounts of events. Its investigation of artefacts or materials is pursued as an arduous analytic process in order to navigate the murky ground of a ‘fuzzy’ forensics of probabilities, possibilities and interpretations. In forensics some of the problems of human testimony have thus come to be reproduced as the problem of the object itself.

An emergent object-oriented juridical culture is a part of a general transformation that has, today, directed attention away from a preoccupation with the subjective and linguistic aspects of trauma and memory and towards an information saturated in the object world. Forensics was developed in parallel in a number

of areas and disciplines, themselves linked by shared methods and sensibilities, and refers to a common epistemological model that has become increasingly influential in the contemporary field of human sciences and law, as well as in popular entertainment. Today's legal and political decisions are based upon DNA samples, 3D scans, nanotechnology, the 'enhanced vision' of electro-magnetic microscopes and satellite surveillance, and extend from the topography of the sea bed to the remnants of destroyed and bombed-out buildings. If popular entertainment is any indicator of cultural shifts, then we could note how – from *CSI* to the novels of Patricia Cornwell and former forensic expert Kathy Reichs – the forensic detective has gradually taken the place of the psychologist detective in television drama.²⁸ Similarly, until the last decade of the twentieth century, medical diagnosis was still largely undertaken by interviews with patients and an aural 'taking of medical history', while physical examination was mainly tasked with corroborating these symptoms. But with recent advances in imaging and laboratory technique, the relative weight of aural 'history taking' has decreased. Diagnosis is now a scientific process, relying on the use of interactive computer programs that allow physicians to 'experience' a visual representation of what is going on inside the patient's body, and designed to assist physicians with decision-making tasks. The 'interviews' that were previously part of the physician's brief – assessing the socio-political context of the patient (family, work, stress, beliefs) – have shifted gradually to become the responsibility of social workers and psychologists. Perhaps the beginning of the twenty-first century will come to be known, above all, as 'the era of forensics'.

Indicative of this shift is also the inauguration within HRW of what the organization refers to as 'humanitarian battle damage assessment'. The first time HRW undertook this kind of damage assessment was in 1999 when it investigated the Kosovo war and the bombing of Belgrade. Steve Goose, director of HRW's aptly and revealingly titled 'Arms Division', explained that the 'military does its own battle assessment damage, looking at how weapons worked. We do an assessment of how the weapons impacted on civilians. We try to figure out why they were killed.'²⁹ The hiring of Marc Garlasco by HRW was meant to reinforce HRW's capacity in this regard.

The images that follow are taken from video documentation of a lecture on war crimes in Gaza delivered by Garlasco at Bard College Human Rights Program in April 2009. In this lecture Garlasco discussed the investigation of the destruction of the neighbourhood of

Zeitun, south of Gaza City, which was almost entirely destroyed during the 2008–09 attack.³⁰ Garlasco, also an amateur photographer, took this photo of a woman sitting, admirably steadfast, in front of the rubble of her destroyed house.



The images demonstrate the shift from emphasis on survivors to material forensics. Although he chose to show this image on the screen, the elements of the photograph Garlasco points to, the things he chooses to interrogate and narrate, are actually in the image's background. Sometimes his silhouette completely obscures the woman. Here he is in fact trying to unpack the event by sifting through the chaotic rubble and trash that were left behind. He sees in this rubble

the difference between tank, armoured personnel carrier and bulldozer tread marks. He described to me the process of his investigation:

When I arrived at Zeitun I saw only four homes untouched. I thought they were the headquarters or the OPs [observation posts] for the soldiers, the anchors of the operation. The rest of the neighbourhood was reduced to all kinds of crushed concrete, iron bars and a lot of rubbish.... We needed to reconstruct the way this destruction took place.... From this rubble I wanted to put together the battle story. I looked in the destroyed structures and the surrounding areas for signs of military activity and also for signs of exchanges of fire between Israeli and Palestinian forces.... Aerial bombardment, artillery fire, tank fire and small arms fire have each their specific signature.³¹



Garlasco based his reading on a general classification of recurring types of ruins: 'the D9 [armoured bulldozer] takes the corners of the buildings ... the central pillars [are left] standing while the edges of the building collapsed and folded outwards.'³² Caterpillar D9 bulldozers create ruins that sometimes look like pyramids or pitched roofs made of cards. This type of ruin, frequent in Gaza, is the new signature

of Israeli aggression. There were about one hundred armoured D9 bulldozers employed in Gaza, including some unmanned and remote-controlled (equipped with cameras on the front) – the largest number ever employed at once – which accounted for about a half of the 15,000 destroyed buildings. Armoured bulldozers can be employed under fire, while other forms of destruction must be undertaken in a more controlled fashion, in relative calm, by military engineers. The signature of the latter type of destruction is the 'pancake' form. Engineers use dynamite or 'anti-tank landmines as demolition explosives ... and set the charges next to, or in cavities cut within, all internal columns throughout the building. This makes the floor slabs come down on top of each other like a pancake pack.' Different types of aerial bombs make different ruin types. Sometimes the military uses delay-fuse bombs that detonate under the ground, making the building collapse in upon itself with the damage relatively circumscribed. Sometimes when the explosion takes place on the top floors the lower floors are left standing. At other times, when the military seeks to warn people inside the building, they employ the tactic of a 'knock on the roof' by firing low explosive munitions to generate a sense of an attack and get people out of buildings seconds before it is reduced to rubble.

Starting from these general types, Garlasco looked for 'irregularities in the pattern of destruction'; things which might designate destruction by multiple sources, secondary explosions which might designate a ammunition cache, or a firefight which could be registered in bullet holes around windows that must be salvaged from under building wrecks. The re-creation of events from the rubble was a difficult task because there was so much unrepaired destruction dating to different periods. Sometimes the different piles of rubble could only be told apart by the number of plants that have grown in between the ruins. The recent attack took place in the rainy season and plants were already growing within the fresh rubble when an HRW investigation got there in late January. The basic building standards in Gaza, the lack of cement for mortar, the rudimentary refugee homes extended vertically irregularly and informally, were easy prey for the steel and explosives thrown at them. They seem to have easily pulverized into dust. At the same time, very little could be rebuilt because cement and other building materials were banned from Gaza for more than a year prior to the war. People were trying to turn the fragments of buildings into construction materials.

Later, the HRW team, including other legal experts, would combine victim and eyewitness interviews with material research to reconstruct their battle story. Bits of metal like fins and chemicals that could not be analysed on site were sent to a laboratory in Norway. Some ruins were modelled with special software. This material was then evaluated in relation to the IHL categories of 'military necessity', 'distinction', 'proportionality' and 'weapon choice'. Garlasco's analysis of the destruction of Zeitun, which plotted the ruins he studied in a sequence of destruction along the 'battle story', pointed to war crimes having been committed:

While Bulldozer destruction might have occurred via battle, landmine destruction must have occurred after battle in preparation for the 'day after' – usually to design the battle field in a way that would favour future operations – this is a war crime of wanton destruction not necessitated by the war.³³

Considering that the rules of IHL are the terms that human right organizations operate by, Garlasco should be acknowledged as one of the most efficient human-rights analysts in recent years, as well as a key figure in the emergence of forensic architecture. In the years leading up to the Gaza investigation, he has become something of a celebrity within the field of conflict analysis, prominently interviewed on news channels, newspapers and documentary films worldwide.³⁴ He has also been an extremely effective advocate for military moderation. His work on Israeli cluster bombs employed in the American invasion of Iraq in 2003, in Lebanon during Israel's 2006 attack, and during the Georgia war of 2008 was central to the UN's ratification of the Convention on Cluster Munitions, which eventually banned these weapons. His investigation of torture in Abu Ghraib helped John McCain pass an anti-torture amendment.³⁵ The hiring of Garlasco by HRW marked a shift not only from the human witness to the material object, but from the focus on the victims of war to an analysis of the mechanisms of the violation of law. One of the best examples is HRW's report on civilian deaths as a result of drone attacks in Gaza, prepared by Garlasco and published in June 2009. It is an astounding foray into the technical capabilities of this weapon:

The drone-launched missiles detonate above the ground, which creates a narrow, relatively shallow crater from missile parts not involved in fragmentation hitting the ground. The detonation of the warhead inside the fragmentation sleeve creates an expanding sphere of fragments that fly out. The fragments are composed of tungsten, a dense inert metal,

and their heavy weight and small size (3 mm cubes) create a rapid drop-off in kinetic energy that keeps the area of effect relatively small – approximately 20 meters in diameter.³⁶

If this report reads on occasion like a piece from a military journal, this testifies to a wider assumption now held by most human rights groups: that a detailed knowledge of technological development and military capability is crucial to their work. As Garlasco has stated:

New munitions and technologies change the nature of war. Technology does not remove responsibility; [it] heightens the ethical responsibilities of commanders because they can estimate the number of civilians that will be harmed in each attack ... [and] every civilian death has wider political effects.³⁷

Forensic fetishism

The controversy that unfolded around Garlasco in September 2009 was one in which contemporary society was confronted with the most extreme manifestation of its growing appetite for forensics – that of the fetish. NGO monitor, a group with links to Israel's ministry of foreign affairs, seized on the discovery of Garlasco's interest in memorabilia and ran a story whose headline included the words: 'Marc Garlasco's Nazi Fetish'.³⁸ To the people who knew him, the implication that Garlasco had an anti-military or anti-Israeli bias was ironic: among HRW personnel he was considered to be one of the closest to the US military and to Israel, who could and did speak their professional language. But this is what made him also a serious threat. HRW reaction was indecisive. It initially defended Garlasco. But a few days later, following the prominent publicizing of the affair in the *New York Times*, and presumably under pressure from HRW's donors, it decided to suspend him on full pay and commissioned an external firm to produce an independent report, which, by mutual agreement, has not been made public to this day. In February 2010, following this investigation, Garlasco resigned.

Garlasco never hid his collection. He ascribed his fascination with Nazi-era memorabilia to his own family history: his maternal grandfather was a soldier in the Wehrmacht (whose uniform was on display in a glass box in Garlasco's home).³⁹ He describes himself as 'a military geek' who collects 'the weapons that I study and the shrapnel I analyze'.⁴⁰ The fascination with militaria that his detractors called 'fetishism' involves, then, the very same qualities that made him a good forensic analyst. Garlasco's response to his detractors should thus be taken seriously. If fetishism is the attribution of an inherent power to an object, then

forensics must be understood as one of the contemporary forms of fetishism. A certain fetishism is also implicit in any attributing to the object the agency of a witness. In terms of our present forensic fetishism, the 'expert witness' is the one assigned with interpreting the language of objects into that of men.

The objects of fetishism here emerge not in the characteristic contemporary understanding of the commodity and/or sexual fetish as objects imbued with affect and desire, but as those 'hieroglyphs in whose dark prism social relations lay congealed and in fragments ... fossils in which a constellation of forces are petrified'.⁴¹ Behind Marx's concept of commodity fetishism, in which the fetish is understood as a mystifying and obfuscating veil that masks the real relations of production, lies an understanding of fetishism that he inherited from nineteenth-century anthropology, which conceives of it as a mediator that constantly translates the concrete into the abstract. In doing so, it allows the part or detail to become the entry point from which some knowledge of larger processes, events and social relations, conjunctions of actors and practices, structures and technologies, may be reconstructed.⁴²

The thirtieth civilian

When I heard about Garlasco's suspension from HRW, I flew to New York to meet him. Garlasco was still shaken by events. I offered to write a letter or an article in his defence, pointing out that his forensics work was credible not in spite of his collection but because of it. Although Garlasco didn't feel it was the best line of defence, we went on talking. When I mentioned that HRW surely must have known about his hobby, Garlasco answered that 'when hiring me in 2003 HRW knew of much worse, that I had been involved in the killing of about 250 civilians in Iraq'.⁴³ Indeed, as has since been widely reported, Garlasco worked for seven years as an intelligence analyst in the US Defense Intelligence Agency. He undertook target selection and planning for aerial bombing in both the 1998 attack on Iraq and the NATO attack on Serbia the following year. Garlasco was also in the Pentagon on the morning of 9/11 when American Airlines Flight 77 hit the building. In the months leading up to the US invasion of Iraq in 2003 he became 'chief of high-value targeting', which, in context, meant 'targeted assassinations'. Garlasco was in charge of tracking and designing the aerial attacks that were intended to kill Saddam Hussein and other Ba'ath leaders in the first hours of the invasion.

A central part of planning these missions involved a calculus otherwise known as 'collateral damage

estimate', which helped to establish the 'right balance of civilian casualties in relation to the military value of a mission'. For every single attack on a political or military leader – and these attacks were mostly on civilian apartment buildings, where the suspecting 'targets' felt camouflaged or protected by being close to civilians – Garlasco had to undertake an analysis that would estimate the number of civilians that would be killed. The projection was based on a specialized software used since the air campaign over Serbia, originally called 'bug splat' and, later, when the connotation of civilian death with disinfection was seen as politically 'unhelpful', renamed 'fast collateral damage' or FastCD.⁴⁴ The software included algorithms resembling those employed in architecture, structural engineering and planning. It synthesized environmental factors such as the size of the building, its construction materials and techniques, the amount of steel in the structure and glass in its envelope, the population density within and around it (which varied at different times of the day). These were calculated against other factors: the size and type of bomb, its fuse, and the direction of the attack. In general, the software would estimate the number of civilian casualties in relation to the collision between types of buildings and different munitions. Pentagon briefers call this a 'mitigation technique' and explain that international law can be complied with through a correct use of the appropriate algorithm.

An analysis of bomb damage as it occurs was narrated to me a few years earlier by a New York-based structural engineer, herself engaged in forensic analysis. She described in harrowing detail how structural engineering interacts with blast engineering to produce an account of death and destruction. I reproduce it here because it allows a glimpse into the detail with which blast calculations can be undertaken.

An explosion is a chemical reaction that causes an extremely rapid release of energy in several forms: sound, heat ... and shock waves, consisting of highly compressed particles of air propagating radially outward from the explosive source at supersonic velocities.... Released energy pushes the air particles out.... The shock wave travels across and through the building, and in the process pressure is applied on all the surfaces it encounters ... it flow[s] both upward and downward and act on the floor slabs of the building ... The exterior walls bends inward and ... break initiating a 'progressive collapse' ... wind rushes in to fill the vacuum, carrying high-velocity debris and flying bits of glass, causing lacerations; lungs collapse, and eardrums rupture ... [but] most people die within buildings, when they collapse upon them.⁴⁵

To arrive at this level of calculation Garlasco had to familiarize himself with architecture, structural engineering and also with urbanism to understand the variable occupancy of buildings throughout the day:

It all boils down to energy transfer, which dictates the angle of attack, the time, the fuse ... How blast energy interacts with structure. Is it made of wood? Steel is stronger than metal reinforced concrete. How much glass in the face of the building, what is the soil type? ... These are calculated against human factors like the number of people within buildings, etc.⁴⁶

The magic number was thirty, he explained: 'if the computer came up with thirty anticipated civilians killed, the air strike had to go to Rumsfeld or Bush personally to sign off. Anything less than thirty could simply go ahead.'⁴⁷ In this system of calculations the

to make attacks that kill or otherwise harm civilians comply with international humanitarian law. It is a moderating principle that seeks to constrain the use of force. While considering the choice of means, the principle of proportionality demands that a balance is established between military objectives and expected damage to civilian life and property. The law does not answer the question of 'how much is too much' but demands assessment on a case-by-case basis in a calculation whose parameters are always relative and imminent. Although the law does not demand that the calculation of proportionality be undertaken according to given formulas, nor establishes numerical thresholds, it is a form of judgement that is algorithmic and economical in its very nature. It demands the estimation of aims, effects and side effects, intended and unintended con-



thirtieth civilian death would be above Garlasco's 'pay-scale'. Because the limits of proportionality are not specified by law, and depend on context, the militaries are those that decide how necessary a task is and what number of civilian deaths is acceptable. The violence sanctioned by international law, therefore, must be thought of as a kind of violence that simultaneously kills *and* saves, thus straddling the threshold between life and death. As Garlasco recounts:

It is important to understand that in January 2003 when the target packages were 'finalized', we had about 300 targets that were considered 'high CD', or high collateral damage, meaning over thirty.... We had the Air Force play with the bomb angles, fusing, bomb tonnage, etc., and got that number down to about twenty-five.⁴⁸

Such estimation of civilian casualties is part of the analysis of 'proportionality' that militaries undertake

sequences – the measurement of 'lesser' and 'greater' evils, their exchange and sometimes even transfer – and this by itself imposes rules of moderation in relation to a real or imaginary 'worst case scenario', always within the immanent economy of violence and without posing an alternative to it. In this economy the designing of an attack starts to resemble a mathematical minimum problem: the abstract and fuzzy ethics of the lesser evil thus gets translated into objective choices: 'the minimum size bomb to generate the required effect, the type of explosives within it, the angle of attack, the time of the day', and so on. Although the effects of violence are always unpredictable, the legal necessity is to go on calculating and approximating nonetheless. When used for justifying military attacks, proportionality is always presented as a kind of violence that is necessarily employed to *reduce* violence.

The legal–ethical economy of proportionality is inversely reflected in the operational economy of risk.

High levels of destruction inflicted from afar are often justified as an attempt to reduce the risk to soldiers on the ground. The destruction unleashed on some neighbourhoods in Gaza during the December 2009 ground invasion, for example, were part of an attempt to reduce the risk for the invading infantry. Many buildings were destroyed simply because they constituted an environment of high risk, and indeed a full-scale invasion into one of the densest parts of the world resulted in more than 1,400 Palestinian casualties and no more than a dozen Israeli military deaths. The estimation and calculation of risk – how to transfer and balance levels of risk between soldiers and civilians – is a political and cultural decision that has to do with the willingness of states to tolerate casualties on their side. Death ratio is one of the gruesome ways in which the economy of ‘necessary evils’, of proportionality and risk, is calculated and managed. It has its macabre side effects too. In a meeting held in an Israeli military base in 2002 a team of experts on law and military ethics was asked about the number of ‘civilian deaths’ they would consider legitimate in the context of the killing from afar of an armed militant as an alternative to risking the lives of soldiers in a ground arrest operation. The average number arrived at was 3.14 – very approximately the mathematical constant π , whose value is the ratio of a circle circumference to its diameter in Euclidian space. Proportionality and risk have together become the language by which the military calculates life and death. That this economy is skewed, and cannot be considered properly ethical even according to its own utilitarian terms, is clear because civilians and soldiers from the military’s own side tend to be calculated differently to those on the other.⁴⁹

According to the logic of Garlasco’s bombing mission planning, because a precise threshold number of ‘acceptable’ civilian casualties had been imposed on each attack, the issue of ‘proportionality’ acquired a material spatial dimension. Without a designated limit to the number of casualties, the military would simply have dropped a large enough bomb to make sure that the entire building and its surroundings were reduced to rubble. The need to keep to the given threshold, however, necessitated the targeted destruction of building parts, a kind of ‘design by destruction’ that involves the destruction of top floors within a tower block, or of single wings in a sprawling building. Bombing could thereafter be conceived of as the design of ruins. The application of the principles of risk and proportionality is then a *material practice* that is registered at the level of destruction and results in the reconfiguration

of physical objects. The calculation of life and death becomes an engineering problem, in which ‘material proportionality’ might, therefore, be understood as the affect of proportionality analysis on the design of ruins. It is this object quality of the problem that has placed the calculations of the engineer at the forefront of contemporary politics.

The economy of ruins

The Iraq War opened on 20 March 2003 with a failed attempt at an aerial assassination of Saddam Hussein which resulted in fifteen civilian casualties. On 5 April, the bombing of the supposed safe house of Ali Hassan al-Majid, known as ‘Chemical Ali’, in Basra was carried out according to Garlasco’s planning. Seventeen civilians were killed; Majid, though, was elsewhere. On 7 April another of Garlasco’s attacks, targeting Saddam Hussein in the al-Mansur district of Baghdad, killed eighteen civilians. On 9 April, Baghdad fell. Each of the fifty targeted assassination strikes failed to kill the person that was its target, yet, as verified months later in HRW investigations, kept under the ‘permitted’ number of civilians casualties: about 250 civilian deaths in total.

Although he did not agree with the rationale behind the Iraq War, Garlasco continued to work for the Pentagon: ‘Whether you agree with the aim of war or not it is going to happen ... I stayed on because I wanted to do it in the best way I could ... I had responsibility to the pilots and the civilians.’⁵⁰ That he understood his responsibility towards civilians in this way demonstrates the logic of this new form of proportional ‘humanitarian violence’; a violence that both kills and saves. ‘I didn’t try to kill civilians ... I focused on military targets and tried my very best every day to minimize civilian casualties.’ Whenever we hear the term ‘minimize’ we must assume that the level from which we start minimizing is inevitably a constant number. Moreover, the ‘minimizing’ function of proportionality often coincides with military objectives. Attempts to govern the economics of violence in the context of the ‘war on terror’ seek to contain the number of civilian casualties, or to make military effort more efficient in terms of focusing the effect of available means. In these cases military adherence to the principle of proportionality might be better understood as supporting the principle of utility – here, in the optimization of military effort. When minimizing civilian harm gives an advantage to the military, proportionality can no longer be understood as a calculus in which military necessity is measured against

civilian harm, but as one that offers a new concept of 'security' in which IHL and HR principles are central. International humanitarian law and human rights laws do not seek to end wars but rather to 'regulate', 'shape' and change the way militaries wage them. Changing the ways of war is also the focus of military thinking, which is now bogged down in a set of urban insurgencies. Common to the self-perception of both militaries and human rights groups is that they must act as non-political experts.

As Thomas Keenan has explained, until the end of the Cold War all human rights organizations could do was to 'mobilize shame, make protest, raise awareness, engage in advocacy'. After 1991, however, there began a gradual process by which the 'threshold of intervention' in the face of human rights violations was lowered.⁵¹ In the late 1990s, the collaboration between human rights organizations and militaries entered into a new phase in the context of the 'humanitarian interventions' – actual or proposed – in central Africa and the Balkans. Responding to inaction and neutrality on the part of the EU, the USA and the UN, human rights groups were among the most vocal advocates of military intervention. Under President Clinton, Human Rights Watch, in particular, became one of the most influential pro-intervention lobbies. With close connections to the state department, it was pushing, long before intervention eventually happened, for external military action to end the atrocities in ex-Yugoslavia and Somalia.

With the election of George W. Bush, HRW lost its influence on policy to the neoconservatives. The post-9/11 military interventions in Iraq and Afghanistan, initially if partially justified by human rights, no longer needed human rights groups in order to legitimize their actions. So, in order to maintain their relevance and influence, HRW and other organizations started to focus their attention on the way militaries fought wars while increasingly seeking to remain neutral with regard to their causes or justness. Their concern was no longer to influence political decision-making over whether or not to wage war. Instead, discussion and cooperation took place at the military level, seeking to influence the conduct of war *tactically*. Around the turn of the millennium, military advisers started gaining jobs in humanitarian and human rights organizations, as an institutional acknowledgement of this new proximity to violence. Former military personnel were much in demand by those who saw in their expertise, experience and professional connections a common asset and a bridge to the military. Garlasco is perhaps the best example of this emerging type of human rights

analyst at a time when human rights practices were in the process of being themselves transformed.

Militaries now regarded human rights groups not as enemies, but rather as constructive and enabling critics. Meeting upon the common ground of the 'lesser evil', each of these organizations agreed, for its own reasons, about the importance of moderating military violence and reducing civilian casualties. For human rights organizations, moderation is about the rights and lives of civilians; for the military, the same moderation might be a principle in a recurring rhetoric of military ambitions of winning 'hearts and minds' in the context of military occupation and government. However, when civilians become the instruments of decision in war – that is, when the political effect of military action is conceived of in terms of the ways in which it impresses itself on civilian consciousness – there is also a stick close behind any carrot. Civilians under occupation could either be courted by protection and development or terrorized into compliance, depending on the situation. In Israel's 2006 war in Lebanon and in its 2008–09 attack on Gaza, the political aims were to be achieved via the pain inflicted on civilians – in creating a wedge between the people and the organizations they support.⁵² This should demonstrate that it is not only in the target of an attack, but through what is considered its 'collateral', that military violence acquires its political effect.

The devil's advocate

After the fall of Baghdad, Garlasco left the Pentagon for Human Rights Watch. HRW gave him a several-weeks-long course in human rights before dispatching him to Iraq. It was the first time he had been there. Back at the 'scene of the crime' that he had previously only studied on screens, he stood now in front of the ruins he had helped create.⁵³ His first task included a review of the results of his previous one: to study the impact of the aerial bombardment and to contribute to the writing of a report on the aerial war in whose planning he participated.⁵⁴ He knew, of course, where to look for the ruins. The report titled *Off Target* was generally critical of the aerial war. It found that attacks that targeted the Iraqi leadership had resulted in the largest number of civilian deaths in the bombing campaign. The report did, however, note that the proportionality analysis undertaken by the Pentagon had been effective in reducing the number of civilian casualties.⁵⁵ As outrageous as the calculus of civilian death appears, the limit of twenty-nine civilians, like any other number that was or could have been used

– indeed, the fact that there was a limit at all – is a form of mitigation that is based on the introduction of IHL principles into military planning.

Garlasco's trip to Iraq marks the moment when techniques and expertise of planning and prediction turn into those of diagnosis, when the forensic investigation of ruins reversed the techniques employed for the making of the ruin by explosives. The development in the technology of precision bombing allowed for the tactics of targeted assassinations to emerge; it also enabled the approximation of civilian deaths and thus the advanced calculations of proportionality. These in turn have also enabled the study and interpretation of the ruin in relation to the event that led to its destruction. It is in this sense that the practice of 'forensic architecture' relies upon the very technologies of bombing they came to monitor. The collapse of buildings was the method by which the Pentagon planned and executed the assassination of the Iraqi leadership. The rubble of buildings was also the means by which forensic architects reconstructed the attacks. 'My forensics is a reverse engineering of the process of military destruction', Garlasco told me. 'When studying a ruin the first thing I do is to think how I would have planned the attack.'⁵⁶ Unlike his private collection, Garlasco's former career at the Pentagon, and the actions he was responsible for, were never seen as a liability. On the contrary, they were flagged up extensively in the media: his military past and strategic know-how were the very things that gave him the visibility he enjoyed as a human rights analyst, and it gave HRW the authority it needed in making its 'humanitarian battle damage assessments' credible. In a positive portrait in 2008, the *Washington Post* called Garlasco 'the man on both sides of air war debate',⁵⁷ and elsewhere he was often asked about 'crossing the lines'. But the notion that Garlasco really *did* cross any lines, in any significant sense, is misleading. Although Garlasco's move from the Pentagon to a human rights organization was understood by many as a kind of redemption story – like the person whose sainthood could only ever be as great as his sins – this misses the extent to which human rights groups and militaries have become intertwined in their methods and aims, and the process by which, in 'forensic architecture', destruction and diagnostic became interchangeable. Another model to consider belongs to the detective genre: the reading of history from the structures it violated is not a benign process of tuning in or learning to listen, but one that partakes in violence, that moves alongside its makers, morphing into it just as the detective becomes as one with the criminal.

Notes

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1. Richard Goldstone et al., *Report of the United Nations Fact Finding Mission on the Gaza Conflict*, Human Rights Council, 15 September 2009 (hereafter Goldstone Report), http://www2.ohchr.org/english/bodies/hrcouncil/specialsession/9/docs/UNFFMGC_Report.pdf.
2. HRW reports in whose making Garlasco participated (not including those on Israel, which will be discussed later) are: *A Dying Practice: Use of Cluster Munitions by Russian and Georgia in August 2008* (2008); *Troops in Contact: Airstrikes and Civilian Deaths in Afghanistan* (2008); *Flooding South Lebanon: Israel's Use of Cluster Munitions in Lebanon in July and August 2006* (2006); *No Blood No Foul: Soldier's Accounts of Detainee Abuse in Iraq* (2006); *Leadership Failure: Firsthand Accounts of Torture of Iraqi Detainees by the U.S. Army's 82nd Airborne Division* (2005); *Off Target: The Conduct of the War and Civilian Casualties in Iraq* (2003). All are available online at www.hrw.org.
3. See Human Rights Watch, *Razing Rafah: Mass Home Demolitions in the Gaza Strip* (2004), www.hrw.org/en/reports/2004/10/17/razing-rafah; *Gaza Beach Investigation Ignores Evidence* (2006), www.hrw.org/en/news/2006/06/19/israel-gaza-beach-investigation-ignores-evidence. For a contestation of the latter by NGO Monitor, see *Experts or Ideologues? The Gaza Beach Incident 2006*: <http://ngo-monitor.org/article.php?viewall=yes&id=2606>.
4. The IDF operations killed some 1,387 Palestinians, at least 762 of whom were civilians, according to a list of names published by the Israeli human rights organization B'Tselem. Thirteen Israelis died during the fighting, three of them civilians. The UN Office for the Coordination of Humanitarian Affairs (OCHA) estimated that 3,914 buildings were completely destroyed, 21,000 housing units were destroyed or badly damaged and about 51,000 people were displaced. See 'Gaza Flash Appeal', February 2009, p. 1, www.ochaopt.org/gazacrisis/admin/output/files/ocha_opt_gaza_flash_appeal_2009_02_05_english.pdf.
5. Omri Ceren, 'Marc Garlasco: Is HRW's Anti-Israel Investigator A Nazi-Obsessed Collector?', www.mere-rhetoric.com/2009/09/08/marc-garlasco-is-hrws-anti-israel-investigator-a-nazi-obsessed-collector/. The blogger wondered if Garlasco's 'obsession with anti-Semitic Nazi genocidal lunatics' was in any way related to his 'apologism for anti-Semitic genocidal Hamas lunatics'.
6. Dremer is quoted in Herb Keinon, 'Diplomacy: Israel vs. Human Rights Watch', *Jerusalem Post*, 16 July 2009 (updated 18 July 2009), www.contento.jpost.com/servlet/Satellite?cid=1246443832672&pagename=JPArticle/ShowFull.
7. Goldstone Report, pp. 6–9.
8. Goldstone's work was to pave the way for the establishment of the Truth and Reconciliation Commission in 1995, a body that he strongly supported. Later allegations embroiled Goldstone in a controversy of his own when an Israeli newspaper revealed that he sent at least twenty-eight black defendants to the gallows as a South African judge under the apartheid regime. See Tehiya Barak, 'Judge Goldstone's Dark Past', *Ynet*, 5 June 2010.

9. Quintilian, *Institute of Oratory*, book 9, chapter 2: <http://honeyl.public.iastate.edu/quintilian/9/chapter2.html#30>. Thanks to Thomas Keenan for this reference.
10. Orators would memorize long speeches, which they were expected to deliver by heart by locating objects or forensic evidence within a mental edifice – most commonly an actual or imaginary building. Walking an imaginary path, they would reconnect objects with the ideas they evoked. This pairing of an object with an idea in rhetoric has also been understood as part of the ‘art of memory’ – the mnémotechnique in which things stand for ideas in a speech – so famously unpacked in Frances Yates, *The Art of Memory*, Chicago University Press, Chicago, 1966.
11. See Fernando Vidal, ‘Miracles, Science, and Testimony in Post-Tridentine Saint-Making’, *Science in Context* vol. 20, no. 3, 2007, pp. 481–508. Thanks to Adrian Rifkin for this reference.
12. In the nineteenth century, photographs as courtroom evidence were often understood as pale substitutes for first-hand evidence posing legal challenges, and even referred to as ‘the hearsay of the sun’. See Joel Snyder, ‘Res Ipsa Loquitur’, in Lorraine Daston, ed., *Things That Talk: Object Lessons from Art and Science*, Zone Books, New York, 2007.
13. David Stark and Verena Paravel, ‘PowerPoint in Public: Digital Technologies and the New Morphology of Demonstration’, *Theory Culture Society* 25, 2008, p. 30.
14. See Steven Byers, *Introduction to Forensic Anthropology: A Textbook*, Allyn & Bacon, Boston MA, 2002; John Hunter, Charlotte Roberts and Anthony Martin, eds, *Studies in Crime: Introduction to Forensic Archaeology*, Routledge, London, 1995; Margaret Cox, *Human Osteology: In Archaeology and Forensic Science*, Cambridge University Press, Cambridge, 2000. Confirming the subtitle of this paper, the first large-scale human remains inquiry was conducted by those experts in making mass graves, the Germans, in 1943. *Mass Murder in the Forest of Katyn: A Factual Account* is the result of an international team of experts that examined 2,500 bodies of executed Polish officers exhumed from a mass grave to prove that they did not suffer their fate at the hands of the Third Reich.
15. Clyde Snow, cited in Dario A. Euraque, ‘The Science of Forensic Anthropology and Human Rights in the Americas’, www.trincoll.edu/orgs/scialnce/SFR/01–02/Files/Forensic%20Anthropology.doc.
16. This was cited to me by Thomas Keenan, who also mentioned the example of William Haglund, who is heading the forensics unit at Physicians for HR, talking about a dig in Bosnia: ‘the dead are speaking to us, we are interpreting for the dead, the dead are telling us the same story that the living are telling the investigators, but this [the ICTY] is the first time on this scale that they have been allowed to speak.’ Thomas Keenan and Eyal Weizman in conversation, ArteEast/Parson School of Design, 13 February 2010.
17. The first instance of a ‘reconstruction’ of the narrative of destruction of buildings (and people) in war that I’ve been able to trace relates to the destruction of the world-famous university library in the Belgian town of Louvain in 1914, which became a major propaganda issue, and came to be seen as the beginning of total war, a case of war crimes and war reparation. The original ‘reconstruction’ was by J. Bledier, who used captured soldiers’ diaries to draw up the case. See Alan Kremer, *Dynamic of Destruction: Culture and Mass Killing in the First World War*, Oxford University Press, Oxford, 2007. An even earlier reference for the documentation of destruction, although not of war, is related to the destruction of Lisbon, which circulated throughout Europe in the eighteenth century: ‘Accounts offer detailed documentation of the damage wrought upon the city and specifically upon the built environment. Heading this category is an elegant series of copper engravings produced by the French artist Jacques-Philippe Le Bas in 1757. The images are derived from drawings executed in Lisbon by Paris and Pedegache and they offer highly detailed records of the important buildings ruined by the disaster. These pictures represent a kind of forensic reporting of the damage. They would have required patient and careful survey of the wreckage, presumably some time after the immediate danger had passed.’ See Sharon Sliwinski, ‘The Aesthetics of Human Rights’, *Theory and Critique*, vol. 50, no. 1, 2009, p. 27.
18. Central to this development is the ‘Kosovo Cultural Heritage Project’ carried out by András Riedlmayer and architect/architectural historian Andrew Herscher after the Kosovo war in 1999. Riedlmayer and Herscher developed a large database of the destruction of architectural heritage in Kosovo and mapped out the patterns of this devastation in order to provide evidence to the ICTY, where their report was presented numerous times.
19. Hito Steyerl, ‘A Thing Like You and Me’, *e-flux*, April 2010, www.e-flux.com/journal/view/134.
20. As Alberto Toscano has suggested to me, one should not forget the Nietzschean lesson, from the *Genealogy*, that conditions of genesis do not necessarily instruct us as to the actual functioning of a given object or phenomenon.
21. Shoshana Felman and Dori Laub MD, *Testimony: Crises of Witnessing in Literature, Psychoanalysis and History*, Routledge, London, 1991; Annette Wiewiorka, *The Era of the Witness*, trans. Jared Stark, Cornell University Press, New York, 2006.
22. The South African Truth and Reconciliation Commission, the Australian National Inquiry into the Separation of Indigenous Children from their Families and Communities, and the Canadian Royal Commission on Aboriginal Peoples would be some of these examples. See also Rosanne Kennedy, Lynne Bell and Julia Emberley, eds, ‘Decolonising Testimony: on The Possibilities and Limits of Witnessing’, *Humanities Research*, vol. 15, no. 3, 2009.
23. Robert L. Bernstein, ‘Rights Watchdog, Lost in the Middle East’, *New York Times*, 19 October 2009.
24. Michal Givoni, ‘Witnessing in Action: Ethics and Politics in a World Without Borders’, <http://roundtable.kein.org/node/1077>.
25. See Alain Badiou, *Ethics, An Essay on the Understanding of Evil*, trans. Peter Hallward, Verso, London and New York, 2001; Rony Brauman, ‘From Philanthropy to Humanitarianism: Remarks and an Interview’, *South Atlantic Quarterly*, vol. 103, nos 2–3, Spring/Summer 2004; Rony Brauman, ‘Learning from Dilemmas’, in Michel Feher, ed., *Nongovernmental Politics*, Zone Books, New York, 2007, pp. 131–47.
26. Lorraine Daston and Peter Galison, *Objectivity*, Zone Books, New York, 2007.
27. This relates to the term ‘material witness’ that was suggested by Susan Schuppli in her account of the analogue materiality of media artefacts. See ‘Of Mice

- Moths and Men Machines', *Cosmos and History*, vol. 4, no. 1–2, 2008.
28. The pop culture manifestation of this shift is exemplified in the career of the actor William Petersen. The first role for which Petersen is famous is FBI agent Will Graham in Michael Mann's film *Manhunter* (1986), the first movie version of one of Thomas Harris's Hannibal Lecter novels, in which he plays an extreme case of the detective as psychologist, driven mad by his empathic capacity to put himself in the mind of a killer. His famous second role, however, is as Dr Gil Grissom, the main character in the initial version of *CSI* (begun in 2000), where he's a borderline autistic science geek, who hates dealing with people rather than objects. Thanks to David Cunningham for this suggestion.
 29. Steve Goose, in HRW promotional video clip, www.youtube.com/user/HumanRightsWatch#p/u/40/CDtDeXS-iuE.
 30. This is what is referred to as 'the day after': the rationale of which is to leave an area sterile by razing it to the ground. 'That way', as one of the Israeli soldiers interviewed in *Breaking the Silence* explained, 'we have good firing capacity, good visibility for observation, we can see anything, we control a very large part of the area and very effectively.' See testimonies at www.shovrimshatika.org/index_e.asp.
 31. Personal interview with Marc Garlasco, New York, 27 September 2009.
 32. See a detailed analogous work of classification in Ariella Azoulay, 'The (In)human Spatial Condition: A Visual Essay', in Adi Ophir, Michal Givoni and Sari Hanafi, eds, *The Power of Inclusive Exclusion: Anatomy of Israeli Rule in the Occupied Palestinian Territories*, Zone Books, New York, 2009.
 33. Personal interview, 27 September 2009.
 34. See Josh White, 'The Man on Both Sides of Air War Debate', *Washington Post*, 13 February 2008; Susanne Koelbl, 'The Pentagon Official Who Came in From the Cold', *Spiegel*, 3 April 2009; and the documentary film by Charles H. Ferguson, *No End in Sight* (2007). Garlasco also featured in a *60 Minutes* story on US military targeting practices that aired 28 October 2007, www.cbsnews.com/video/watch/?id=4402000n&tag=related;photovideo.
 35. Human Rights Watch, 'Leadership Failure: Firsthand Accounts of Torture of Iraqi Detainees by the U.S. Army's 82nd Airborne Division' (2005), www.hrw.org/reports/2005/us0905.
 36. Human Rights Watch, 'Precisely Wrong: Gaza Civilians Killed by Israeli Drone-Launched Missiles' (2009), www.hrw.org/en/reports/2009/06/30/precisely-wrong-0.
 37. Personal interview, 27 September 2009.
 38. NGO Monitor, 'Expert or Ideologue? HRW's Defense of Marc Garlasco's Nazi Fetish', 2009, www.ngo-monitor.org/article/expert_or_ideologues_hrw_s_defense_of_marc_garlasco_s_nazi_fetish.
 39. John H. Richardson, 'Why Is This Good Man Getting Hung Out to Dry?', *Esquire*, 13 October 2009, www.esquire.com/the-side/richardson-report/marc-garlasco-nazi-controversy-101309#ixzz0yqLuDcH0.
 40. Marc Garlasco, 'Responding to Accusations', *Huffington Post*, 11 September 2009, www.huffingtonpost.com/marc-garlasco/human-rights-watch-invest_b_284075.html.
 41. Steyerl, 'A Thing Like You and Me'.
 42. We might rather follow here, then, the way in which for Marx objects *really do* have a 'fantastic form of relation' between them, asking: 'what would the commodity say if it could speak?' See Étienne Balibar, *The Philosophy of Marx*, trans. Chris Turner, Verso, London and New York, pp. 56–81.
 43. Personal interview, 27 September 2009.
 44. Aaron T. Wilson, 'Building The Perfect Beast: Proposals to Improve Usaf Targeting Training', Air Command and Staff College Air University, April 2006.
 45. Sina Najafi, Eyal Weizman and Eve Hinman, 'The Building is Our Last Line of Defense: An Interview with Eve Hinman', *Cabinet* 16, 2004/05, www.cabinetmagazine.org/issues/16/weizman.php.
 46. Personal interview, 27 September 2009.
 47. Mark Benjamin, 'When is an Accidental Civilian Death Not an Accident?', *Salon.com*, 30 July 2007, www.salon.com/news/feature/2007/07/30/collateral_damage.
 48. Marc Garlasco, cited in *ibid.*
 49. See Adi Ophir, 'Meta Violence and the End of Physics: Derrida reads Levinas', in *Lyyun: The Jerusalem Philosophical Quarterly* (forthcoming). Asa Kasher, one of the people who drafted the IDF ethical code, states: 'From the standpoint of the state of Israel, the [Palestinian civilian] neighbour [of a 'terrorist'] is much less important. I owe the soldier more. If it's between the soldier and the terrorist's neighbour, the priority is the soldier.' See Amos Harel, 'The philosopher who gave the IDF moral justification in Gaza', *Ha'aretz*, 6 February 2009.
 50. The HRW statement at www.hrw.org/en/node/84956 reads: 'Human Rights Watch maintains a position of neutrality on issues of *jus ad bellum*', because it believes that it is 'the best way to promote our primary goal of encouraging all sides in armed conflicts to respect international humanitarian law, or *jus in bello*.' In this way, HRW took upon themselves some of the traditional role played by the International Red Cross as the neutral guardians of the Geneva Convention.
 51. Thomas Keenan and Eyal Weizman in conversation, ArteEast/Parson School of Design, 13 February 2010.
 52. See Eyal Weizman, 'Lawfare in Gaza: Legislative Attack', March 2009, www.opendemocracy.net/article/legislative-attack.
 53. See Jorella Andrews, 'In-Situ: The Ethics of Standing and Staring' (forthcoming), in which she refers to 'the visual prolongation of a disastrous event'.
 54. See Garlasco, 'Off Target', www.hrw.org/reports/2003/usa1203/. In this comprehensive 147-page report Human Rights Watch found that US forces could have prevented hundreds of civilian casualties by abandoning two faulty military tactics – the use of cluster munitions and heavy reliance on 'decapitation' strikes designed to kill Iraqi military and political leaders. The latter was the action Garlasco was involved in.
 55. *Ibid.*: 'For the most part, the collateral damage assessment process for the air war in Iraq worked well, especially with respect to pre-planned targets. Human Rights Watch's month-long investigation in Iraq found that, in most cases, aerial bombardment resulted in minimal adverse effects to the civilian population' (p. 20).
 56. Personal interview, 27 September 2009.
 57. White, 'The Man on Both Sides of Air War Debate'.