Introduction: Forensis

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Forensis is Latin for "pertaining to the forum" and is the origin of the term forensics. The Roman forum to which forensics pertained was a multidimensional space of politics, law and economy, but the word has since undergone a strong linguistic drift: the forum gradually came to refer exclusively to the court of law, and forensics to the use of medicine and science within it.[1] This telescoping of the term meant that a critical dimension of the practice of forensics was lost in the process of its modernization—namely its potential as a political practice.

This book returns to forensis in order to reorient the practice of contemporary forensics and expand it. The aim here is to bring new material and aesthetic sensibilities to bear upon the legal and political implications of state violence, armed conflict and climate change. But rather than being limited to presentation in the legal domain alone, forensis seeks to perform across a multiplicity of forums, political and juridical, institutional and informal.

Forensis is here employed as the operative concept of a critical practice, one that is committed to investigating the actions of states and corporations and also to critical reflection on the terms by which contemporary forensic investigations—on the scales of bodies, buildings, territories and their digital representation—are currently undertaken. This book therefore presents both the forensic investigations undertaken by its different authors and a set of critical examinations of the prevalent status of forensics in articulating contemporary notions of public truth.

In relation to the latter, forensis is used to interrogate the relation between the two constitutive sites of forensics—namely *fields* and *forums*. In forensic terms the division is straightforward: the *field* is the site of investigation and the *forum* is the place where the results of an investigation are presented and contested. However, both these sites must be understood to be more than mere locational designations. The field is not only a neutral, abstract grid on which traces of a crime can be plotted out, but itself a dynamic and elastic territory, a *force field* that is shaped by but also shapes conflict. The forum, in turn, is a composite apparatus. It is constituted as a shifting triangulation between three elements: a contested *object or site*, an *interpreter* tasked with translating "the language of things," and the assembly of a public gathering. Forensis thus establishes a relation between the animation of material objects and the gathering of political collectives.[2]

This relation resembles what the Roman rhetorician Quintilian called *prosopopoeia*—the mediated speech of inanimate objects.[3] Small things such as commodities, coins, statues, or weapons could be physically handled,

presented and traded in the forum. Sometimes—as in the story of the bronze statue of the athlete Theagenes of Thasos that fell and crushed a man who scorned it—objects could even be tried, convicted, and sentenced (the statue in this case was put on trial for murder, convicted and punished by being cast into the sea).[4] Things too far away, too abstract or too large—such as cities, resources, rivers, territories or states—had to be brought vividly to life by the power of an aural demonstration. They had to be made evident (visible), credible and persuasive. Quintilian called this form of presentation *evidentia in narratione*—a manner of presentation "in which a truth requires not merely to be told, but to a certain extent obtruded."[5] Contemporary modes of *prosopopoeia* animate material objects or landscapes by converting them into data and image.

This complicates the relation between the component parts that make forensic speech. Objects are animated in the process of presentation, referred to as if they were human subjects; as a famous forensic anthropologist once put it, "bones make great witnesses," before going on to pose questions to them in court.[6] The interpreters, meanwhile, are no longer necessarily people or experts but also automated or semi-automated technologies of detection and imaging. Finally, forums are no longer confined to arena-like buildings, but become increasingly diffused across a wide spectrum of sites and media forms.

This book is an interrogation of what could be understood as the "forensic turn"—an emergent sensibility attuned to material investigation that has become increasingly evident not only in contemporary law and the fields of human and environmental science, but also in popular entertainment.[7] Within the context of our forensic present, state agents are shown to detect and uncover, sometimes preempt, the actions of rogue individuals that threaten the social order, thus reasserting the power of a "benevolent state."[8] The state controls the technological means, and science stands as the embodiment of a rational order assembled to confront and overpower irrational aberrations. The present forensic sensibility seeks to bypass human testimony, especially that of the victims of violence, precisely because the memory of violent events, often complicated by trauma, is seen to be marked by the very irrationality, sometimes madness, of the perpetrator, and thus, to a certain extent, to mirror it.

Forensics can however never really overcome the complexities of the subject, the ambiguity of language, and the frailty of witness memory. Material science is never conclusive, but subjected to probability calculations and margins of error, and the material reality forensically presented is itself of course filtered through language. Furthermore, as I shall later explain, while police forensics is a disciplinary project that affirms the power of states, the direction of the forensic gaze could also be inverted, and used instead to detect and interrupt state violations. It is precisely because of the potential political agencies and the complexity of the emerging scientific-aesthetic-linguistic field of forensics that a *new forensis* must emerge to challenge the assumptions of received forensic practices.

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This book was assembled as a methodological experiment moving along two trajectories. On the one hand it was produced in the context of a "forensic agency" established at the Centre for Research Architecture at Goldsmiths in 2011 under the name of Forensic Architecture. This agency was unique in that its members—architects, artists, filmmakers and theorists—the ferociously creative fellows, students and members of the Centre, rather than qualified scientists and pathologists, were those undertaking the investigations. We set our research agenda and chose each of the investigations according to our political interests and commitments, and in order to interrogate the ways in which new types of evidence can affect political and legal processes. Together with different partner organizations,[9] we investigated the actions of states and corporations and offered our analyses to civil society organizations, NGOs, activist groups, and prosecutors, who have presented them in various legal and political forums.

On the other hand our work emerged as a body of historical, theoretical and artistic research into contemporary forensic practices, in order to critically evaluate their epistemologies, assumptions, protocols, and politics of knowledge production.

These component parts of our work were interdependent, but also came into tension with each other, sometimes even into contradiction (how could a responsible "expert" critique the concept of truth?). But rather than seeing the tension between practice and critique as a problem that needs to be resolved by choosing one or the other, we found in this problematization a productive resource that intensified our research process. This tension was essential also because of the fundamental political ambiguity we felt towards existing forensic practices. The modern history of forensics is of course the history of the techniques by which states police individuals. It includes the physiognomic techniques of the nineteenth century and the digital eavesdropping of yesterday. We were on the other hand committed to the possibilities of reversing the forensic gaze, to ways of turning forensics into a counter-hegemonic practice able to invert the relation between individuals and states, to challenge and resist state and corporate violence and the tyranny of their truth. Transformative politics must begin with material issues, just as the revolutionary vortex slowly gathered pace around the maggots in the rotten meat on board the Potemkin.

Our investigations took place mainly in zones outside the effective control of states. These "frontier zones" are the lawless battlefields of our colonial present. They are zones outside established state jurisdiction and established frames of criminal justice, where sovereign jurisdiction is unclear (such as in the Mediterranean Sea, where migrants are left to die), disintegrated (as in some parts of Somalia or Yemen, where militants headquarter and drone assassinations take place), or suspended and under siege (for example in such places as the tribal areas of west Pakistan, Gaza or the West Bank). In these places, powerful states can both inflict violence and deny they have done so. We have also studied cases of "environmental violence"

along the mineral frontiers of the Amazon basin and the Atacama Desert and undertaken research in the remote highland frontiers of Guatemala, where the state is now coming to terms with the systematic destruction of people and landscapes that took place there a few decades ago. Ordinary criminal forensics can usually not engage with these zones and issues. In contrast to the situation within state borders, here established forums do not always exist. In fact new forums must often be gathered around the necessities of justice.

However, mixed or absent jurisdictions in frontier zones have not limited the dissemination of evidence. New visibilities have emerged with the development and widespread accessibility of digital data derived from activist imagery and their accelerated dissemination via mobile phone, cloud, and social networks. These technologies have expanded the capacity to bear witness, but they have also transformed the meaning of testimony, and to a certain extent eroded its sanctity.[10] Today there are many photographers and spectators but only a few witnesses in the traditional sense. While the number of images and available information in the public domain has been amplified, bringing new sights, sounds, and issues into the eyes and ears of an extended polity,[11] these images also call for new practices of trawling through, looking at, and looking again, interpreting, verifying, decoding and amplifying messages and broadcasting them further.

Forensis should thus be understood as something akin to a "critical forensic practice" that includes both the production of evidence and the querying of the practices of evidence-making. Indeed, acts of political and legal activism must negotiate a complicated terrain between compromise, complicity, resistance and evasion. As the interview with human rights lawyer Michael Sfard in this book demonstrates, confronting political injustice in the name of the existing laws of war (also known as International Humanitarian Law or IHL) needs to be cognizant of the ways by which these laws have also been increasingly used to regulate, legitimate, and conduct the very violence they seemingly oppose. But the emergence of "a forensic warfare" with which states use the laws of war to inflict violence,[12] providing selective evidence while destroying and denying evidence of their own wrongdoing, has also made Western states increasingly vulnerable to legal action. Western militaries and states now organize to defend against what they refer to as "lawfare," describing it as a core threat on a par with their worst enemies (those completely dismissive of the effectiveness of legal action should note how Israel went so far as to call international humanitarian and legal action against it a "third strategic threat" alongside Hezbollah and nuclear Iran).[13] Sfard spoke to us about his struggles to find ways to work critically and tactically with the law, of his attempts to find modes of practice mindful of its limitations and limited potentials, while simultaneously recognizing the necessity to find other forums in which legal claims could politically resonate.

Artists have collaborated with human rights organizations since the birth of the human rights movement in the mid-1970s, and these two groups have co-evolved ever since. Human rights groups made great use of the affective power of poetry, documentary photography and filmmaking in stirring public compassion and action. On the other hand, the emergence of the human rights sensibility structured the way artists understood and described conflict world-wide, providing means to interrogate historical and political processes from the point of view of its individual victims. Registering this entangled development, the lobbies of human rights organizations are almost exclusively dedicated to art exhibitions depicting personal stories filtered through different documentary practices. However, with several important exceptions, artists' accounts and representations of individuals in distress were external to and illustrative of the actual investigative work of human rights researchers. This project seeks to mark a possible departure from the terms of this collaboration, and employ aesthetic means as investigative tools or as modes of investigation for analyzing political processes and their consequences.

The prospect of political activism committed to technological and scientific investigation might understandably raise objections against the prospect of a return to the "rule" or "tyranny" of experts and to the dangers of becoming detached from direct experience and empathy. But in the field that Thomas Keenan, following Allan Sekula, has called "counter-forensics,"[14] the experts and scientists we have collaborated with did not fit the mold of the authoritarian, objective and neutral scientist inherited from Victorian-era state-funded science.[15] The majority worked rather in modest, fragile, overstretched and underfunded organizations, or else carried out their research completely independently and voluntarily. Their work was mostly driven by political commitments and was motivated by a sense of solidarity. Indeed, the significance of the neutrality of the expert in assessing the plausibility of the expertise is waning. Having an axe to grind should sharpen the quality of one's data rather than blunt one's argument. Forensis is a good model for connecting aesthetic practices, activism, and science because it is structured by the necessity of taking sides in an argument, of fighting for and defending claims. (It is when the investigative process is opaque to non-experts—such as with DNA analysis—that claims for neutrality and objectivity start occupying their traditional central roles.)

In forensis, then, we found both an operative concept and a critical practice, but on the understanding that "critical" also connotes the vital, the crucial, and the decisive. We were not simply content with unveiling and analyzing instances of power camouflaged as benevolence, nor with undertaking a critical anthropology of science or the law. The kernel of our multidisciplinary field was rather architecture, and in architecture we found a mode of intervention.

Indeed, the intensification of architectural research was central to our project. We employed architecture as a field of knowledge and as a mode of interpretation, one concerned not only with buildings but rather with an ever-changing set of relations between people and things, mediated by spaces and structures across multiple scales: from the human body to human-induced

climate change, from the scale of a single home, through that of larger territories, to the scale of the earth as the ultimate home—and one that we gradually came to realize is becoming both a construction site and a ruin.[16] To progress this claim I must explain what we mean by "forensic architecture" and why it became a crucial term for our work.

Forensic Architecture

Considering the wide range of projects, scales, issues, and epistemic frames that the project ended up traversing, it is important to mention that Forensic Architecture had a modest start: it was inspired by the unassuming work of building surveyors—the careful and systemic analysis of the structural and infrastructural conditions of a building.[17]

Building surveyors understand a crucial thing missed by most architects: a building is not a static thing. Rather, its form is continuously undergoing transformations and in these transformations it registers external influences. The various material components of a building—steel, plaster, concrete, or wood—move at different speeds in response to the constant force of gravity, the influence of the climate, changing patterns of inhabitation and use, and the unique force of impact. These diffused form-making forces continue the singular form-making practice of the architect. Surveyors see buildings as matter undergoing complex processes of formation—as matter in formation, that is, as information. It is indeed in the material deformations and structural failures that micro and macro forces, political and historical processes might reveal themselves.

Some of a building's most crucial transformations occur well below the threshold of unenhanced visual perception. It takes years for microscopic air bubbles trapped within a fast-drying paint to make their way up or down the face of a structure; their expansion and contraction, the path taken and the rate of their crawl respond to year-on-year changes in pressure and temperature, to fluctuations in humidity and changes in the levels of pollution, which are the result of, among other things, political decisions, or more precisely indecisions, regarding the environment. The inefficiencies of the *global climate forum* for example are thus indexed in the slight buckling of the wall paint, right under the window sill, in our office's kitchenette. Although, as I will later show, never perfectly so.

For a building surveyor, architecture is a sensor, in that it is *aestheticized* to its environment. Its form of aesthetics is however primer for and primary to human judgment. Aesthetics is originally understood as that which pertains to the senses, but in this context it designates not the human senses but rather the sensorial capacity of matter itself. It is the way in which matter can detect, register, and respond not only to contact and impact, but to influences in its environment and to remote presence. Matter can be regarded as an aesthetic sensorium in as much as its mutations register minute transformations, fluctuations, variations and differences within force fields.

Forensics aestheticizes territorial formations in different ways. The incessantly transforming fields of conflict are the result of relations between a wide multiplicity of agents and the environments in which they are located. I have previously referred to these zones as the *political plastic* (referring to Joseph Beuys' definition of art as a social plastic), in order to emphasize the ways conflicting geopolitical forces continuously interact with the materiality of the surface of the earth as they slow into form, or accelerate in a blast!

Architecture emerges as a documentary form, not because photographs of it circulate in the public domain but rather because it performs variations on the following three things: it *registers* the effect of force fields, it contains
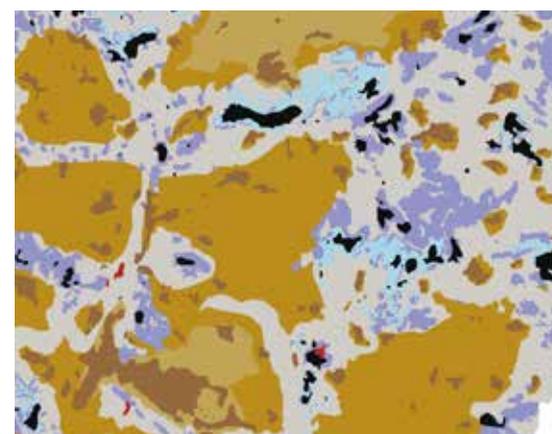

Fig. 1. Eyal Weizman, *Political Plastic: The West Bank*, 2002. These are graphic layers of a map of Jewish settlements in the West Bank prepared jointly by Eyal Weizman and B'Tselem. In blue are Jewish Settlements; in brown, Palestinian built fabric. The map was presented as evidence in a number of legal processes in Israel and in The Hague. The form of the colored areas on the map registers changing political forces. Source: http://www.btselem.org/download/settlements_map_eng.pdf.

or *stores* these forces in material deformations, and, with the help of other mediating technologies and the forum, it *transmits* this information further.

But the aesthetic dimension of forensics is not simply a return to a pre-Kantian aesthetics in which the sensing object was prioritized over the sensing subject—rather, it involves a combination of the two.[18] Material aesthetics is merely the first layer of a multidimensional concept that Thomas Keenan and I called *forensic aesthetics*.[19] Forensic aesthetics is not only the heightened sensitivity of matter or of the field, but relies on these material findings being brought into a forum. Forensic aesthetics comes to designate the techniques and technologies by which things are interpreted, presented and mediated in the forum, that is, the modes and processes by which matter becomes a political agent.

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Seen from the perspective of forensic architecture, investigating this material geology of contemporary conflict still requires a building surveyor, but a building surveyor of a new kind: the survey can no longer be immediate and haptic; the trained surveyor's eye and the notepads on which his/her observations are recorded are replaced by remote-sensing technologies that augment the aesthetic sensibility of material formations; images of localized forms of damage that *have* occurred are extended by mathematical algorithms to model the damage that *might* occur in the future. But something of the relation between a structural issue, the surveyor and the forum still lingers.

If the figure of the detective was the nineteenth century's response to the density, complexity and alienation of the modern metropolis, the building surveyor must be the indispensible figure for understanding the present condition of urban life as that of urban warfare. This form of violence— eruptive in cases of armed conflict or latent in ceaseless architectural acts of

securitization—comes to reconfigure both the metropolis (the Western city) and the megacity (where Western armies chase their enemies). It manifests itself in the entangled acts of construction, fortification, destruction and reconstruction. In a time when most people dying in armed conflicts die inside buildings, the city can no longer be considered merely the location of war, but rather should be understood as the apparatus with which warfare is conducted. When the dust of its destruction finally settles, the way it settled can become evidence.[20] But a ruin is rarely a piece evidence in and by itself. Cities are complex systems and the targeting of buildings, bridges, roads and other nexuses of infrastructure can exercise a relational effect well beyond the site of impact.

For forensic architecture, buildings are thus not just passive elements, receptive sensors on which events are registered. Nor are they just the scenes of a crime, the locations in which violence takes place. Rather, built environments are composite assemblies of structures, spaces, infrastructure, services and technologies with the capacity to act and interact with their surroundings and shape events around them. They structure and condition rather than simply frame human action, they actively—sometimes violently—shape incidents and events.

A structural crack is a good example of an element that is both a sensor and an agent. Although such cracks may be seen as indicators of a structural problem external to themselves, they should not be understood simply as symptoms, but rather as material events that emerge as a result of evolving force contradictions around and within them. No crack can ever be reproduced; each is a unique combination between micro material inconsistencies and macro force fields. Cracks progress along paths of least resistance that tear through the places where the cohesive forces of aggregate matter are at their weakest. Moving up through the deep surface of the earth, supersonic cracks tear not only through rock, but also through the thickness of the atmosphere as if it were a solid medium. Cracks are without scale; their paths connect the materiality of otherwise disparate elements, including tectonic plates, bedrocks, structural foundations and domestic walls. They move through rock where a denser mineral concentration has settled. A column, beam, or floor might crack where the cement hardened around the odd cigarette butt thrown into the mix during the process of construction.

As non-matter, cracks move faster than the material formations they tear through. A famous Guatemalan forensic anthropologist, holding a skull in his hand, explained to Paulo Tavares and I that when a gunshot hits a skull at three times the speed of sound, cracks emerge around the entry hole. As the cracks start tearing round the circular circumference of the skull, the speed of their movement is the same as the speed of the bullet, but they accelerate because the internal pressure adds to the force of impact. These cracks move so much faster than the bullet (which as a material thing is decelerating under the influence of friction) that they beat it to the far side; thus the bullet impacts an already cracked surface on the other side of the same skull.[21]

Fig. 2. Forensic anthropologist Fredy Peccerelli demonstrates the impact on a skull of a bullet fired from a gun. Still from Paulo Tavares and Eyal Weizman, *The Mineral Geology of Genocide* (2012), 47 min.

Figs. 3, 4. Stills from a video from the Dhaka police showing building surveyor's markings over the crack (image on the left) in one of Rana Plaza's walls, Savar, Dhaka area, April 23, 2013 (a day before the collapse). Source: BBC News, "Dhaka Building Collapse: Police footage shows cracks," April 26, 2013. http://www.bbc.co.uk/news/world-asia-22307589.

When architectural surveyors study cracks or other aspects in the structural pathology of a building, they tend to interpret their findings in relation to a narrowly circumscribed set of conditions. They trace material deformations back to force, but in this they have reached the limit of their epistemic frame. Forces are rarely linked back to their multiple political causalities. Such was the case in the trials concerning the responsibility for the collapse of the Rana Plaza factory in Savar near Dhaka. On April 23, 2013, a crack appeared in the floors and walls of the building used by garment industry sweatshops. Municipal building inspectors ordered the closure of the factory. But a crack is merely the potential for something to occur. Whether it will tear a building apart or just linger there for years is a matter of probability. The Rana Plaza factory owners, hard pressed to deliver cheap fashion products to Western labels, assessed the risk of collapse and the potential deaths of their workers in relation to the risk of losing a lucrative contract due to delays in production. They disregarded the warnings and forced the workers to return on the following day (the senior management was not based in the building). The workers, without voice or choice, entered the building at 8 am; at 9 am the crack expanded, cutting furiously through it. More than a thousand people—mostly women earning less than $40 a month to produce our clothes—died in the rubble.

The legal process dealing with the collapse of the building—our research fellow Nabil Ahmed reported back from Bangladesh—involved building surveyors both as witnesses and among the accused. The trial had the authority to engage with the responsibility for the causes of the event only in terms of the construction quality of the building, the thickness of reinforcing bars in the concrete columns, the floors illegally added, and the loads of the industrial machinery that the building was never designed to hold. Left out of the analytical process were the larger forces and actors involved in the collapse: factory owners connected to the ruling party, the consumers, and the multinational corporations feeding an endless appetite for cheap fashion, forcing prices down and productivity up through a tangle of subcontracting chains, all of which had the combined effect of both enriching the elite and distancing their actions from direct responsibility.

An analysis that would expand outwards from the crack should not only seek closure and reparation, but should articulate new claims for justice.

Dhaka-based architect and political activist Sujaul Khan made this connection when he concluded his detailed survey of the collapse by extending the metaphor to politics, writing

that "the entire industry is bursting at its seams with dissent," and insisted that justice necessitates a combined approach dealing with both the material conditions of the building and those of the workers.[22] This recalls the figure of Leonard Horner—the nineteenth century Factory Inspector for Lancashire (and an amateur geologist) who, by exposing poor working conditions in the garment industries (how little has changed!), according to Karl Marx, "rendered an undying service to the English working class [...] that should never be forgotten."[23]

In another part of the world Israeli excavations undertaken in the name of "biblical archaeology" beneath the Palestinian neighborhood of Silwan, next to the old city in occupied Jerusalem, displaced a level of earth between building foundations and the limestone bedrock. The vibrations caused by the excavation work could no longer be absorbed by the layer of aggregate earth. These vibrations shot to the surface uninterrupted. In their petition to the Israeli High Court in 2008—as Dana Behrman, a former student at the Centre for Research Architecture, has written—Palestinian residents and their representatives seeking to stop work on the site presented photographs of fractures in roads, water and sewage systems, crawling up structural foundations and domestic walls, disappearing and reappearing as they discover ever more lines of least resistance through the surface or depth of natural limestone bedrock, asphalt, concrete and plaster.[24] Excavating for archaeological ruins below the surface seems to have turned buildings above the surface into contemporary ruins. The cracks also moved across different epistemic/disciplinary frames: geology, archaeology, urbanism, and architecture. Echoes of the historical and political context that involves the ongoing underground occupation of Palestine were uttered in court but never heard. After a short suspension, the court rejected the petition of the residents, accepted the state's claim that the cracks might have been the result of "poor and illegal construction" and authorized the continuation of the subterranean colonization of Palestine.

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Our task is to extend the scope of forensic architecture beyond the presentation of structural analysis in the context of property and insurance disputes, and turn it into an analytical frame and a multi-layered political practice. It should make use of what Arjun Apadurai, following Marx and Benjamin, has called "methodological fetishism"—the microphysical analysis in which the part or detail becomes an entry-point from which to reconstruct

Figs. 5, 6. Cracks in the road and on the walls in the Palestinian neighborhood (former village) of Silwan, east Jerusalem. These images were submitted to the Israeli court in 2008. Source: www.silwanic.net/?p=1552.

Fig. 7. (right) Human Rights Watch's munitions expert Marc Garlasco presenting a photograph that he took in the aftermath of the 2008–2009 Gaza attack (Cast Lead) at the Human Rights Project, Bard College, in April 2010. In the image a woman stands admirably steadfast in front of the ruins of her house. This photo encapsulates the problematic aspect of the shift in emphasis from victim testimony to forensic architecture. In narrating this image Garlasco shifts his attention to figure to ground, interrogating the rubble of the house behind the witness and masking her. His findings were frequently quoted in the Goldstone report. Photo: Human Rights Project, Bard College, 2010.

Fig. 8. (below) Richard Goldstone's press conference in Gaza, June 4, 2009. This image is perhaps one of the best demonstrations of the principles and dangers of forensic architecture. Goldstone, heading a UN commission of enquiry into the Israeli attack of Cast Lead (2008–2009) stands in front of a destroyed multi-storied building. Goldstone was worried that the credibility of the witnesses in Gaza would be politically questioned and turned the attention of his report to material things. Buildings here stood for the absence of witnesses. Around Goldstone are members of the government in Gaza; before them stands a bouquet of microphones belonging to international news networks. But since the ruined building cannot speak for itself, Goldstone speaks on its behalf to an international forum. Photo © Ali Ali/EPA/Corbis.

larger processes, events and social relations, conjunctions of actors and practices, structures and technologies.[25] Beyond its manifestation in commodity or sexual form, it is in forensics that the fetish can be most productively practiced today. Here, the fetish should not be the mystifying and obfuscating veil that masks the true way in which objects are made in the world—a feature of capitalism that Marx identified in commodity fetishism. On the contrary, under the microphysical lens of methodological fetishism, it is in the object that the fabric of complex social relations, imprinted political forces, and logics of practice are folded.[26] If fetishism is the attribution of an inherent power and a certain agency to inanimate objects, then we must embrace the term as we come to understand objects, buildings, cracks and their representations as historical agents.

In some respects forensic architecture is similar to, and in others it crucially departs from the modes of practice found in other forensic practices like forensic medicine, anthropology, or archaeology. This departure is not due to the fact that the subject matter of the former's investigation is qualitatively different—architecture could indeed describe the pathology of the contemporary era; buildings, cities, infrastructure, and territories (as well as their ruination) could potentially occupy an analogous place to that of the human body in forensic medicine for example. Rather, it is because the *architecture* in forensic architecture poses a different kind of challenge to the *forensic* in this pairing, and vice versa. They mutually undo some of their respective authorities and designate a field that is beyond the scope of what is otherwise bounded by the separate epistemic frames they bring together.

From the perspective of forensics, architecture is an analytic and probative mode for enquiring into the present through its spatial materialization. Forensics turns space into evidence, but also into the medium in which different types of evidence come together and into relation with each other. Forensic architecture thus intensifies the investigative capacity of architecture and turns it into a mode of public address, a way of articulating political claims, and forces architectural researchers to face cross-examination in the most antagonistic of forums.

On the other hand, seen from the point of view of architecture, forensics is extracted from its purely juridical context and placed in the political context of the forum. Producing and presenting new types of evidence, as some essays in this book will argue, can challenge the very forums in

which evidence is presented. Evidence can affect a change to the protocols in forums, or expand their perceptual and conceptual frames. New forums may emerge when a new claim becomes evident. Here forensic architecture becomes a projective practice that designates modes of conceiving, assembling and constructing forums for the future.

The stereoscopy of forensic architecture thus simultaneously looks backwards and forwards. In order to interpret past events from the analysis of material spaces, it is necessary to assemble new forums able to respond to the complex demands of the future. To put it another way, forensic architecture engages both in acts of claim-making and in the practice of forum-building.

Forums

Forensic architecture's practice of establishing forums around evidence (rather than the more common procedure whereby evidence enters existing courts) has an important historical precedent. The ICTY (The International Criminal Tribunal for former Yugoslavia) was established by the UN in 1993 soon after the beginning of the Bosnian war and the discovery of evidence of extreme violence there.[27] Its establishment was seen as a way of intervening in the then still ongoing conflict.[28] But it was arguably established precisely in order *not* to intervene in the conflict. The decision of Western states to set up the ICTY, along with their strategy of sending and supporting humanitarian missions, can be seen as an intentional alternative to sending their militaries into action.

Francesco Sebregondi's conversation with Cesare Romano in this book demonstrates the way in which the ICTY played a central part in shaping an informal network of institutions that also includes international, national, and provincial courts, human rights councils and parliamentary commissions. Although these tribunals are some of the most institutionalized sites for the presentation of architectural evidence, the physical architecture of their settings can often be unassuming. Some of them inhabit improvised or rented offices, community and sports halls, which demonstrates the extent to which their physical setting is secondary to their function as media environments. The "agora-centrism" of these international tribunals means that they have emerged as media spaces in a way that traditional courts—still largely allergic to the presence of the media—are not yet allowed to be. The architecture and physical arrangement of tribunals, as Laura Kurgan explains, responds to the media by which they operate. Face-to-face interaction

Figs. 9–12. In the spring of 2009, following the Israeli winter attack, the Gaza-based and Hamas-run Ministry of Public Works and Housing started compiling an archive titled "A Verification of Building-Destruction Resulting from Attacks by the Israeli Occupation." This "book of destruction" contained thousands of entries, each documenting a single building that was completely or partially destroyed, from cracked walls in houses that still stand, to those completely reduced to piles of rubble. Each photograph displayed a catalogue number spray-painted onto the walls or onto the rubble itself. Sometimes, the building had been so badly pulverized that the numbers had to be held up in front of the camera at the moment the photograph was taken. Source: Palestinian National Authority, Ministry of Public Works and Housing.

is replaced by face-to-screen and screen-to-screen interrogation. The legal process proceeds much like the work of broadcast studios, using a comparable array of facilities to record, store, archive, and transmit the images and sounds on which it depends.[29]

In her project on the ICTY archive, Susan Schuppli examines the procedures by which media-artefacts turn into evidence. As she follows the movement of video tapes, satellite images, maps, and recording devices through a juridical matrix that sorts, archives, catalogues and presents them, these objects become what she calls "material witnesses": that is, they bear witness not only to the alleged criminal events but to the very sorting process they underwent in order to qualify as evidence. Sharing this preoccupation, the Model Court collective is concerned with the ways in which new audio-visual and telecommunication technologies, their material presence, digital properties, interruptions and breakdowns, outline the contemporary sphere of universal jurisdiction as that of spatial and linguistic dislocation. Their film and installation *Resolution 978 HD* (2013), reproduced in this book as an image essay, follows the genocide trial of François Bazaramba, a Rwandan national, in a district court of Porvoo, Finland. Because the trial necessitated the remote interrogation of the accused via teleconference, the legal principle of *habeas corpus*—which usually demands the physical presence of the accused—was re-interpreted as the threshold condition of various technologies—bandwidth, resolution, and automatic light detectors—that would allow the remotely-assembled court to see a person blush or sweat.

From Subject to Object

Within the fields of human rights and international law a methodological shift has recently lead to a certain blurring. An emerging forensic sensibility has increasingly blurred the previously distinct categories of evidence, corresponding to the law's reference to objects, and the witness, the source of human testimony. This forensic turn is articulated against a cultural background that is increasingly tuned to the testimony of victims. Referred to by scholars as the "era of the witness," recent decades have seen the foregrounding of the narratives of victims, so that they have exerted an enormous cultural, aesthetic, and political influence.[30]

One of the manifestations of this blurring of categories is found in the way attention to the linguistic contents of testimony (*logos*) is increasingly displaced by attention directed to the materiality of the voice (*phōnē*). This is especially apparent in the way human speech is currently interrogated in the context of asylum hearings. Lawrence Abu Hamdan's work is concerned with the way border agencies employ digital techniques of voice enhancement to conjure a simplified geography of origins out of people's accents (most often in order to deny asylum and justify deportation). In his chapter in this volume, he explains that, under these conditions the witness

account becomes itself the object of investigation, rendering the voice simultaneously "the means of testimony and the object of forensic analysis." Such privileging of the bodily aspect of enunciation over the linguistic of course has strong colonial connotations, and threatens to drown out the message, sometimes fragile and faint, in the stories of the most vulnerable people. In seeking the ultimate truth about the subject in the objectified qualities of its body, these techniques resemble physiognomy and phrenology—prominent influences on criminology—which up to the middle of the nineteenth century saw "the spirit in the bone."[31] Modern techniques of policing, it seems, do not just resemble, but in fact inherit aspects of these outmoded and politically suspect practices.

Increased attention to the body has recently been manifest in the mobilization of medical records and other evidence of bodily harm in human rights and humanitarian testimonies. This has challenged more traditional human rights epistemologies. From its inception, human rights work was been concerned with the human subject, the individual, and developed its methodologies around the dissemination of victim testimonies. These testimonies provided human rights organizations not only with an epistemic resource with which to reconstruct histories of violence, but also charged their advocacy with affective ethical and political force.[32]

However, the ultimate witnesses of atrocities, as Primo Levi insisted, are not the survivors whose testimonies can be listened to, recorded, archived, and transmitted.[33] Starting in the mid-1980s and with increasing prominence since, forensic archaeologists, anthropologists, and pathologists have been upturning the surface of the earth. In Argentina, Spain, Guatemala, Poland, Cambodia, Afghanistan, Sudan, Yugoslavia, Rwanda, Honduras, Iraqi Kurdistan, and Cyprus their work has uncovered hidden historical details of extreme acts of violence, and aided in the returning of human remains to victims' families. The contribution made by exhumations in the form of legal evidence has been referred to as "the testimony of the dead."[34]

These efforts made a crucial contribution to shifting the political epistemologies and aesthetic representations of conflicts, inaugurating nothing less than a new cultural sensibility whose implications are still evident in the way political conflicts are represented in the news media, but also in literature, film, the arts and popular culture. Today, when exhumations are among the most common techniques for dealing with post-conflict environments, we might easily forget that not too long ago the mass graves of the victims of political violence were only the sites of religious or national ceremonies. In many places where conflicts were still ongoing, they were neglected or treated as rubbish dumps.

But it is not only the exhumation of the civilian victims of wars that has made a significant intervention in the politics played out on the surface; the forensic re-examination of the bodies of former anti-imperial or anti-colonial leaders, whose deaths occurred in suspicious circumstances, has recently been embraced as a means of challenging dominant historical and political narratives. In an earlier essay, Godofredo Pereira described how Hugo Cháves' arrangement of the televized exhumation of the bones of Simón Bolívar in 2010 became a hybrid between a national ceremony, a scientific investigation, and a geopolitical intervention. Intended to cement a bond between Cháves and Bolívar, it was however publically presented as an attempt (ultimately unsuccessful) to determine whether Bolívar's bones contained traces of arsenic, a possibility that would have implicated the Colombian oligarchy of the time, and by extension present-day Colombia, Cháves' bête noire, in the killing of "the liberator."[35] This was just one instance of a frenzy of recent exhumations in South America. A year later, in 2011, the body of Salvador Allende was also exhumed, this time following the request of his family, but with no less political implications. The task of the exhumation, which was more sober, was to ascertain whether his death had been caused by suicide, as officially stated on his death certificate, or by Pinochet's troops when they stormed the presidential palace at the time of the coup. The pathologists that gathered around the remains explained the controversial presence of two bullet holes in the skull, a fact that seemed to support an assassination scenario, as being the result of Allende's use of an automatic rifle—the AK47 presented to him by Fidel Castro. Other recent exhumations include that of Nobel Prize-winning poet and diplomat Pablo Neruda in 2012 for a similar reason to that of Allende, and Francisco Caamaño, the executed guerrilla leader and former president of the Dominican Republic, whose remains were recently exhumed in order to confirm their identity before reburial. A truth commission examining the abuses of Brazil's long dictatorship has recently exhumed João Goulart, the former Brazilian president toppled in a 1964 coup supported by the United States, in order to determine whether he was poisoned in 1976 by agents of Operation Condor while in exile in Argentina.[36]

The recent cycle of exhumations in South America, which began in the aftermath of the junta regimes there, might relate to the cultural tradition of presenting and celebrating the dead. Though this connection between tradition and forensic politics might be specific to Latin America, similar practices are also prevalent on the other side of the Atlantic. In Spain exhumations are currently being undertaken in order to find and identify the remains of the poet Federico Garcia Lorca and others killed during the Spanish Civil War. In Palestine the remains of Yasser Arafat were recently exhumed in a search for a lead isotope that would indicate the presence of radioactive polonium-210 and implicate Israel (and its nuclear reactor) in this death. Forensics, increasingly, it seems, becomes a tool of political protest. The fact that the anti-colonial or the anti-imperial leaders of the past are being exhumed might indicate that the politics they pursued are felt to be direly absent amongst the living.

Human remains provided the hinge on which our forensic sensibility turned. However, as the above cases of exhumations demonstrate, this sensibility did not place science above politics. Nor do such cases, as

Thomas Keenan elaborates in his essay, undo the ambiguity and messiness that is central to the concept of evidence. Although, in the popular imagination, the cold gaze of science produces conclusive and non-contestable proofs, findings in the natural sciences are all subject to probability and margins of error. The qualifying statements with which science expresses its finds has always left room for political manipulations and negations. The Swiss forensic team that examined the remains of Arafat concluded that he was poisoned by Polonium with "83% confidence." This allowed the spokesman for the Israeli foreign ministry to characterize the scientific results as "inconclusive, at best."[37]

The testimonies of survivors were never simply matters of positive truth: it was often in silence, distortion, confusion, or outright error that the effects of trauma, and hence the eventually accepted truth of certain events, was inscribed. Yet the turn to exhumations does not produce a scenario in which the solid object provides a stable and fixed alternative to human uncertainties and ambiguities.[38] On the contrary, the aesthetic, political, and ethical complications that emerge with this turn establish the dead body not as an alternative to testimonial practices, but rather their continuation.

The next phase in our investigation into the development of a new forensic was not confined to the study of the shift from subject to object, but rather of the tension that new forensic practices articulated between *figure* and *ground*. The figure-ground gestalt—which in our case describes the relation between the individual (dead or alive) and environments (natural or man-made)—bears on questions of detectability and liability and implies also a shift in the political potential of forensics.

From Object to Field

In their work, Grupa Spomenik (Monument Group) challenges both the objectification and subjectification of human remains. An introduction to their ongoing platform, "Mathemes of Re-association," is presented in this book by Shela Sheikh. In August 1995, the UN Security Council were shown satellite images of what appeared to be mass graves near Srebrenica; a month later, the Serbian forces that perpetrated the genocide exhumed these graves and reburied hundreds of bodies in several secondary graves in other areas under their control. Subsequently, fearing the discovery of the secondary sites as well, they exhumed the bodies once again, and reburied them in a number of tertiary graves. Because of the crude and hasty manner in which these exhumations were conducted, remains of some bodies ended up scattered across up to four gravesites over a large geographical area. After
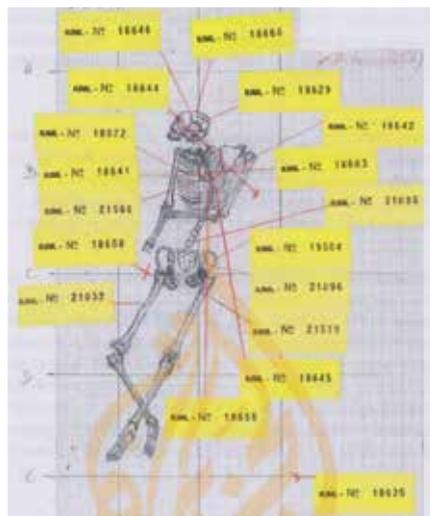
Fig. 13. Labeling and location of the collected specimens taken from Yasser Arafat's body upon his exhumation on November 26, 2012. Source: "Swiss forensic report on Arafat's death," Al Jazeera, last updated November 6, 2013, http://www.aljazeera.com/investigations/killing-arafat/swiss-forensic-report-arafat-death-201311671255163780.html.

the war, the process of exhuming the bodies was complemented by their recomposition. The International Commission on Missing Persons (ICMP) sought to establish the links between the different gravesites by identifying soil types and cataloguing the DNA of separate bone fragments, re-assembling the bodies from the territories in which they were scattered. When more than seventy percent of the bone mass of a single person was collected, the bones were formally considered a single individual worthy of reburial. But these individual bodies were also ascribed a collective identity as Muslims by the religious authorities undertaking the reburials. Thus in the intervening years, the process of ethnic transformation has been completed, as victims who were shot and put into mass graves as (in their own understanding) secular Yugoslavs, were disinterred with a religious identity. This ascribing of identity after death was, according to the Grupa Spomenik, the product of a similar process of ethnic separation and mindset to that which led to the destruction of these people in the first place.

Part of Grupa Spomenik's and Forensic Architecture's project, Living Death Camps, included a collaboration with Caroline Sturdy-Colls, a forensic archaeologist who has developed a technique of non-invasive archaeology with which she can peer into the soil in search of human and architectural remains, without digging the ground or exhuming it. Her images of the soil show no clearly-defined objects, only variations in soil density and compactness. The actual nature of the blurry objects seen in the representations she produces is a matter of probability. Only when archaeology becomes physical and objects are taken out of the ground do they get separated from the soil into which they have disintegrated. Their borders need to be reestablished, and a figure emerges.

International Humanitarian Law and human rights investigations produce figurations. They tend to extract an individual (victim or perpetrator, alive or dead) from the messy physical or political ground in which they were embedded. Individual testimonies, recorded in voice or in bone, were indeed useful in personifying histories of violence and making them affective. But by concentrating on the victim and by seeking to evoke identification and compassion, such accounts tended to mask the political context.

Other developments in human rights research methodologies—such as epidemiological and demographic studies of conflict-related mortality—turned away from a focus on the single victim. While pathology deals with the individual body, epidemiology is concerned with the statistical measurement and spatial mapping of patterns of public health, disease, and mortality at the level of populations. In a seminar organized by Forensic Architecture together with the humanitarian Rony Brauman and Médecins Sans Frontières (MSF) France, we studied this bio-political transformation, focusing on the way in which emergent techniques of collecting, analyzing, and presenting conflict-related mortality data have been used as tools of political advocacy, supporting calls for intervention or abstention in recent debates around conflicts in Sudan, Darfur, Burma, the Democratic Republic of

Congo, and Iraq among others. While epidemiology establishes yet another relation to the witness, here as a statistical figure, the more pronounced the shift towards medical science and quantitative analysis has become, the more contested the science of epidemiology has also turned out to be.[39]

Another factor in turning the attention of human rights analysis to the earth's surface was the increased availability to the public, starting in the early 2000s, of satellite imagery. The reason here was technical. People are invisible in publically available satellite photographs, which are degraded, for reasons of privacy and security, to the resolution in which the human body is masked within the square of a single pixel. From the satellite's orbit, events can only be registered as material inscriptions across the surface of the earth.[40] These transformations are most commonly presented in "before and after" images, as Ines Weizman and I show in this volume.

In the work of Forensic Oceanography (Lorenzo Pezzani and Charles Heller together with Situ Studio) presented in this volume, the ground—which in this case was the surface of the Mediterranean Sea—is studied to establish the location of the figure. In April 2011 a boat carrying seventy-two African migrants en route to Italy ran out of petrol on the high seas. This was the time of NATO's siege of Libya and the Mediterranean was full of military vessels. The migrant boat drifted for fourteen days, without food or water, and, without anyone intervening to help them, despite the obligation under international maritime law to provide assistance to those in distress. Everyone on board died, but for nine survivors. Movement on water leaves no trace. But the Forensic Oceanography team set to reconstruct the path of the boat and identify the location of military vessels in its proximity by studying the sea as a digital sensorium. The location of the place where a phone call was made by the migrants (to an Eritrean priest in the Vatican) established the starting point of the drift. Historical patterns of wind and water movements in the Mediterranean established a probable drift path. By demonstrating the proximity of the boat along its course to various military and commercial ships that could have intervened, this research has the potential to reorient the judicial process, which is still ongoing.

Field Causality

In the gestalt of human rights work, the figure (individuals/testimonies/exhumations) and the ground (collectives/territorial studies/epidemiology) occupy opposite ends of the spectrum. We needed another operative concept in order to work across the figure/ground divide. *Field causalities,* relating to the dimension of field in the field/forum divide of forensic practices, allowed us to connect individuals, environments, and artifices. They are, as our curator Anselm Franke explains, articulated through multiple foldings of figures into grounds, beings into their milieus, forms emerging out of

origins, influencing these 'grounds' in return. The field is not an isolated, distinct, stand-alone object, nor is it the neutral background on or against which human action takes place. Rather, it is a thick fabric of lateral relations, associations, and chains of actions between material things, large environments, individuals, and collective action. It connects different physical scales and scales of action. It overflows any map that seeks to frame it because there are always more connections and relations to be made in excess of its frame.

Field causalities challenge contemporary ways of understanding violence because they demand a shift in explanatory models and structures of causation. From a perspective informed by an understanding of field causalities, the analysis of armed conflict can no longer conform to the model of criminal law that seeks to trace a direct line between the two limit figures of victim and perpetrator, or between the two ends of a smoking gun. Establishing field causalities requires the examination of force fields, causal ecologies, that are non-linear, diffused, simultaneous and involve multiple agencies and feedback loops. Whereas linear causality entails a focus on sequences of causal events, field causality involves the spatial arrangement of simultaneous sites, actions and causes. It is inherently relational and thus a spatial concept. By treating space as the medium of relation between separate elements of evidence brought together, field causalities expands the analytical scope of forensic architecture.

Field causality is a useful frame for describing forms of violence that are not ruptural, but rather slow and continuous, without clear beginnings or ends—those which might be considered to constitute an endless war defined by the permanent clash of multiple forces. Adrian Lahoud's essay—"Floating Bodies"—deals with such a form of violence as it studies the entanglement of climate change, political conflict, and war crimes in Darfur. Drawing on Locard's principle that "every contact leaves a trace," which is fundamental for modern forensics, Lahoud suggests that in certain contexts "the contact and the trace drift apart, carried away on ocean currents and diffused into the atmosphere." In a loop of positive feedback, the effects of human-induced climate change—such as the desertification in the Sahel—aggravate conflicts along it, while these armed conflicts in turn further aggravate the destruction of the environment.

Paulo Tavares' work also engages with the intersection of armed conflict and environmental destruction, by looking at the way recent and contemporary conflicts across the forests of Central/South America echo the earlier patterns of colonial violence that resulted in the transformation of the entire habitat of indigenous peoples. New technologies for the detection, imaging, and modeling of eco-systems such as the Amazon Basin, reveal these forests to be archaeological resources in which the spatial dispersal of plant types registers patterns of past human inhabitation and movement. Nature, as Tavares insists, is not natural, but historical and archaeological in its relation with people. It also possesses a certain agency. In Ecuador and Bolivia, legal rights are extended into the sphere of what

Tavares calls "non-human rights," which are the rights of nature itself as a political subject.

Forensic Architecture's investigation of the attacks conducted by government forces against the Ixil Maya people in the West Guatemalan highlands in the early 1980s sought to complement expeditions undertaken for the purpose of exhuming the victims of these wars with an account of the ways in which the natural and built environment have been the subject of systematic violence.[41] We joined the exhumation teams and attempted to find and map the locations of villages whose houses—built of organic materials—have disintegrated into the cloud forest. The Ixil had a large degree of autonomy from state control, but the military campaign sought to "close" this last frontier. The campaign's strategy included systemic forms of environmental violence that used the twin processes of construction and destruction: the massacres of civilians were complemented by the destruction of their villages, fields and forests—the very ground on which both the *life* of the Ixil depended and on which also their *ways of life* were structured; meanwhile, government plans for the construction of model villages, roads, military installations and large farms were intended to complete the reconfiguration of the environment as a means of exercising state control and bringing the Ixil within the fold of the state.

Field causalities are hard to establish, particularly in court, and might end up being the "bastard's" best line of defense, in deflecting direct responsibility onto a multiplicity of different causes. The legal problems that emerge out of the shift from direct, intentional and linear causal chains to complex, environmental causal fields are demonstrated in the work of Nabil Ahmed on arsenic poisoning. What came to be known in the late nineteenth century as the "Styrian Defense" was an argument used by those accused of using arsenic for murder, by which they explained the presence of the poison in dead bodies by pointing to its widespread presence in the Victorian domestic environment.

A similar problem in legally establishing responsibility for field causalities is exemplified in the work of the Modelling Kivalina group. Their essay in this volume starts with the failure of the legal case *Native Village of Kivalina v. ExxonMobil*. In 2008 residents of Kivalina—a barrier island situated off the northwestern coast of Alaska—filed a lawsuit in the the District Court for Northern California against twenty-three of the largest oil and gas companies in the world, charging them with contributing to climate change through the emission of greenhouse gases, and thus to the erosion of their shoreline which, they claimed, threatened the island with imminent destruction. The court ruled that the petitioners had not established direct causal chains of responsibility due to the fact that climate change is a distributed and complex process, spanning the entire earth. Against the persistent defense of a criminal trial, it is hard enough, Eric Baccard, the chief forensic scientist of the International Criminal Court, coldly informed us, to establish that a hole in a skull measuring 5.56 mm is the result of a 5.56 mm bullet, let alone to establish complex and diffused field causalities.[42]

Fig. 14. Trekking in the mountains around Pexla Grande in search of traces of building foundations. Still from Paulo Tavares and Eyal Weizman, *The Mineral Geology of Genocide* (2012), 47 min.

The adequate forums for dealing with field causalities might not be found in the juridical but rather the political domain. To establish field causalities for violence and injustice is to articulate the material basis for the imperative to dismantle or fundamentally reconfigure the political field, as opposed to the standard tendency of international justice to isolate a few culpable individuals while leaving the social and economic hierarchies of a society intact.

Weak Sensors

Forensics is the product of a series of mediations and intermediaries: sensors, modes of capture, algorithms to calculate them, experts to present them, and forums to debate and decide on how to act upon them. Each of these mediators has its own grammar, and is, of course, politically conditioned in a different way.

In the task of registering political forces, proximate or remote, material form could only ever be a "weak sensor," suggestive rather than conclusive. Politics does not materialize in built (or destroyed) space as linear transformation in the same way that quicksilver, for example, translates temperature into volume. The forums are themselves never simply objective; each is located within a complex political reality that operates according to a different set of protocols, and is prone to different forms of manipulations. Each ultimately draws different limits around what can be shown and said.

Material forms can thus only reflect history in fragments and ruins, and suggest uncertain, discontinuous, and lacunar interpretations. But although we can never know the past as a conclusive, transparent fact mechanically etched into materiality, we should avoid the temptation of an anti-universalist perspective which regards truth simply as inherently relative, contingent, multiple, or non-existent, and instead view truth as a common project under continuous construction.

States and corporations can mobilize large resources to construct their claims. But the nature of struggles for justice is that they must run counter to dominant and dominating narratives. They most often encounter not so much the "well-constructed facts" but rather the "well-constructed lies" produced by the technocrats working for rich states and corporations.[43] Political activists and other militants strive thus not on the solid ground of state-sponsored science but rather on weak signals, often at the threshold of visibility, pushing against the flood of obfuscating messages, of dominant narratives, fabricated noise, and attempts at denial. It is precisely because of the inherently fuzzy nature of forensis and the fragility of its truth claims that political mobilization is essential and commitments are necessary. At the same time, without the ambiguity of material investigation, politics would simply become the implementing arm of a calculative automaton.

The investigations conducted by members of the Forensic Architecture team across the battlefields of contemporary frontier wars were tuned to and mobilized around weak signals that were sometimes barely perceptible.

A faint and blurry line in a single frame of a video shot by a videographer/activist along the wall in Palestine demonstrated, against all efforts at state denial, that a gas cartridge was fired by an Israeli soldier, directly aiming at and killing a peaceful demonstrator (see "Case: Bil'in").

A few scattered pixels, a little lighter than those surrounding them, suggested, in the absence of other photographic documentation, the impact of a missile fired by a drone at the dusty ground of a town in Pakistan's western frontier regions, where more than forty civilians were killed, contrary to the US attempt at denial (see "Case: Drone Strikes").

Blurry footage shot by a member of the Gaza solidarity flotilla—and saved only because it was swallowed, most likely, by an activist seeking to protect it from being confiscated by the military—in Maayan Amir's essay shows the way in which an activist boat came under fire in the legal limbo of international waters.

The probable drift path of a boat carrying dozens of migrants dying of thirst and hunger, constructed using the after-work calculations of an oceanographic laboratory incorporated into a report of the Forensic Oceanography group, allowed the public to see how close this distressed boat was to many commercial and military vessels that ignored the plight of those on board.

Small changes in the density of vegetation detected in a sequence of satellite images taken from above the Atacama Desert suggest that, as Godofredo Pereira elaborates, a state-sponsored corporate mine is stealing the little water left to sustain the lives of a struggling native community.

It is precisely because the material and media flotsam we have been examining are not the hard evidence of a "well-constructed," peer-reviewed science that they can potentially be in excess of science. Their aesthetic power exists in their potential for refuting state-sponsored mechanisms of denial, obfuscation and manipulation that were established by those that control not only the depth of space, but also its interpretation.

Unlike science, politics is not driven by a desire for a well-constructed truth, and unlike law it does not seek to render judgment on past events from the vantage point of the present order: rather, it is driven by a desire to change the way things are.

An important component in our ability to respond to political challenges is the capacity of forensis to move beyond detecting, calculating, processing, and presenting acts of injustice. Achieving a heightened aesthetic state of material sensitivity, tuned to weak signals, must be enhanced by a sensitivity to the materiality of politics: this entails an appreciation that whether you are a building, a territory, a pixel or a person, to detect is to transform, and to be transformed is to feel pain.

1   See the entry *forensis* in the Lexicon of this volume.

2   On the political and aesthetic implications of animism, see Anselm Franke, "Animism: Notes on an Exhibition," *e-flux Journal* #36 (July 2011), http://www.e-flux.com/journal/animism-notes-on-an-exhibition/.

3   See Thomas Keenan, "Getting the dead to tell me what happened: Justice, prosopopoeia, and forensic afterlives," in this volume; and Thomas Keenan and Eyal Weizman, *Mengele's Skull: The Advent of a Forensic Aesthetics* (Berlin: Sternberg Press, 2012), 28. Quintilian discusses prosopopoeia in Book 9, Chapter 2 of his *The Orator's Education*, trans. Donald A. Russell (Harvard: Harvard University Press, 2001).

4   Miguel Tamen, *Friends of Interpretable Objects* (Cambridge, MA: Harvard University Press, 2004), 79–80.

5   Quintilian, *The Orator's Education*, Book 4, Chapter 2: 63. For a discussion of this subject see Carlo Ginzburg, *Threads and Traces: True False Fictive*, trans. Anne. C. Tedeschi and John Tedeschi (Berkeley: University of California Press, 2012), 7–15.

6   Eyal Weizman, "Osteobiography: An Interview with Clyde Snow," *Cabinet*, issue 43, Forensics (Fall 2011): 68–74.

7   If popular entertainment is any indicator of the cultural shift towards forensic fetishism then it is significant that—from *CSI* to the novels of Patricia Cornwell and the former forensics expert Kathy Reichs—the scientist-detective has gradually taken the place of the psychologist/psychoanalyst-detective popular in TV drama throughout the 1980s and 1990s.

8   See Anselm Franke, "The Forensic Scenography," in this volume.

9   We worked in collaboration with SITU Research on many of our investigations.

10   Rabih Mroué's lecture-performance *The Pixelated Revolution* (dOCUMENTA 13, Kassel, 2012) demonstrated means by which to interrogate such material.

11   Meg McLagan and Yates McKee, eds., *Sensible Politics: The Visual Culture of Nongovernmental Activism* (New York: Zone Books, 2013).

12   See Eyal Weizman, *The Least of all Possible Evils: Humanitarian Violence from Arendt to Gaza* (London: Verso, 2011), especially the section "A Legislative Attack" in chapter three.

13   Caroline Wyatt, "Legal Claims 'Could Paralyse' Armed forces," *BBC News,* October 28, 2013, http://www.bbc.co.uk/news/uk-24576547. On the conception of threat posed by legal action see Thomas Keenan and Eyal Weizman, "The Third Strategic Threat," *OpenDemocracy*, June 7, 2010, http://www.opendemocracy.net/thomas-keenan-eyal-weizman/israel-third-strategic-threat. On the military conception of Lawfare, see Charles J. Dunlap, "Lawfare: A Decisive Element of 21st-Century Conflicts," *Joint Force Quarterly*, vol. 3 (2009): 34–39, at 35.

14   Thomas Keenan, "Photography and Counter-forensics," *Grey Room*, no. 55 (Spring 2014).

15   Lorraine Daston and Peter Galison, *Objectivity* (New York: Zone, 2010).

16   In this and other ways, *Forensis* continues the trajectory of research exhibitions at the Haus der Kulturen der Welt curated by Anselm Franke such as "Animism" (2012) and "The Whole Earth" (2013), with Diedrich Diederichsen.

17   Sam Kubba, *Architectural Forensics* (New York: McGraw-Hill Professional, 2008). See Dale Paegelow, *Forensic Architecture: An Introduction* (Patterson: Cromlech Architect, 2001), www.cromlech-architect.com.

18   For Bruno Latour aesthetics designate the ability to perceive and to be concerned, "to render oneself sensitive, a capacity that *precedes* any distinction between the instruments of science, of art and of politics." See "The Anthropocene and the Destruction of the Image of the Globe," Latour's fourth Gifford Lecture, Edinburgh, February 25, 2013, http://www.ed.ac.uk/schools-departments/humanities-soc-sci/news-events/lectures/gifford-lectures/archive/series-2012-2013/bruno-latour/lecture-four.

19   Forensic Aesthetics was the title of a series of seminars I taught with Thomas Keenan and Nikolaus Hirsch at the Städel School in Frankfurt in the academic year 2010–2011, http://www.staedelschule.de/forensic_aesthetics_d.html. Keenan and I developed the concept further in *Mengele's Skull*.

20   Sometimes, the composition of dust itself is a form of evidence in which body and building parts are intermingled. See Füsun Türetken, "Breathing Space: The Amalgamated Toxicity of Ground Zero," in this volume; and Susan Schuppli, "Impure Matter: A Forensics of WTC Dust," in Godofredo Pereira, ed., *Savage Objects* (Guimarães: Fundaçao Cidade de Guimarães, 2012), 120–40.

21   Fredy Peccerelli, in Paulo Tavares and Eyal Weizman, *The Mineral Geology of Genocide* (2012), 47 mins, http://vimeo.com/36971048.

22   Sujaul Khan, "Never again," *Daily Star*, April 30, 2013. See also Ravi Nessman, "2 Bangladesh Garment Factories Show Effort, Lapses," Associated Press, June 21, 2013; and Bangladesh University of Engineering and Technology, "Collapse of Rana Plaza in Savar: Structural Point of View," undated, http://www.buet.ac.bd/jidpus/wp-content/uploads/2013/05/Fact-findings-of-Rana-Plaza1.docx, last accessed January 2014.

23   Karl Marx, "Condition of Factory Labourers," April 7, 1857 (first published in *New York Daily Tribune*, No. 4994, April 22, 1857), http://marxengels.public-archive.net/en/ME1006en.html. Thanks to my colleague John Hutnyk for brining Horner to my attention, twice. See http://hutnyk.wordpress.com/2012/01/27/leonard-horner-hall/.

24   Dana Behrman, "Born again Landscape: the Politicisation of Archaeology and Architecture, the Case of Wadi Hilwa/City of David, East Jerusalem," master's dissertation, Centre for Research Architecture, Goldsmiths, 2010.

25   Arjun Appadurai, "Commodities and the Politics of Value," in *The Social Life of Things: Commodities in Cultural Perspective*, ed. Arjun Appadurai (Cambridge: Cambridge University Press, 1988), 3–63. This is similar to the task performed by the character of Martha Rull in Heinrich von Kleist's forensic comedy *The Broken Jug*. The trial is tasked with reconstructing the events that led to the breaking of a jug. Despite the protests of the judge (he was the person who broke the jug), Martha uses the shards to describe the destruction wrought on sixteenth-century Europe: "You see / The bits, that's all, the bits that used to form / The loveliest jug of all. You see this hole? / Well, there you once could see how Charles the Fifth / —Such lovely robes he wore—how he handed / The Netherlands over to his son

Philip." Heinrich Von Kleist, *The Broken Jug: A Comedy*, trans. Roger Jones (Manchester: Manchester University Press, 1977), 27. This first came to my attention in Cornelia Vismann, "The Love of Ruins," *Perspectives on Science*, vol. 9, no. 2 (2001): 196–209, at 200.

26 In the wake of the war-crime investigations following Israel's 2008–2009 attack on Gaza, one of the world's foremost "forensic architects," assembling evidence against the military, was suspended when it was publicly revealed—to great media fanfare—that he was a collector of Nazi-era fetish items, and thus allegedly unsuited to impartially investigating the Israeli military. I thought that, if true, shouldn't the fact that he had such a collection, to the contrary, increase his credibility? See Weizman, *The Least of All Possible Evils*, 99–136.

27 See, for example, S.C. Res. 808, U.N. SCOR, 48th Sess., 3175th mtg., U.N. Doc. S/RES/808 (1993); and Letter dated 10 February 1993 from the Permanent Representative of France to the United Nations Addressed to the Secretary-General, U.N. Doc. S/25266 (report of the Committee of French Jurists).

28 Allison Marston Danner and Jenny S. Martinez, "Guilty Associations: Joint Criminal Enterprise, Command Responsibility, and the Development of International Criminal Law," *California Law Review*, vol. 93, Issue 1 (2005): 75–169.

29 See Laura Kurgan, "Residues: ICTY Courtroom No. 1 and the Architecture of Justice," *Alphabet City 7: Social Insecurity* (2001): 112–129; and Cornelia Vismann, "Tele-Tribunals: Anatomy of a Medium," trans. Sara Ogger, *Grey Room*, vol. 10 (Winter 2003): 5–21. For more recent developments, see "TV Cameras Allowed into Court of Appeal," *BBC News,* October 31, 2013, http://www.bbc.co.uk/news /uk-24744684.

30 Shoshana Felman and Dori Laub, *Testimony: Crises of Witnessing in Literature, Psychoanalysis and History* (London: Routledge, 1991). Annette Wieviorka, *The Era of the* Witness, trans. Jared Stark (Cornell: Cornell University Press, 2006).

31 G. W. F. Hegel, "Observation of Self-consciousness to its Immediate Actuality: Physiognomy and Phrenology," in *The Phenomenology of Mind*, trans. J. B. Baillie (London: Harper and Row, 1967).

32 Michal Givoni, "Witnessing in Action: Ethics and Politics in a World Without Borders," http://roundtable.kein.org /node/1077, last accessed January 2014.

33 Primo Levi, *The Drowned and the Saved*, trans. Raymond Rosenthal (New York: Summit Books, 1988), 83. See also Adam Rosenblatt, "International Forensic Investigations and the Human Rights of the Dead," *Human Rights Quarterly*, vol. 32, no. 4 (November 2010), 921–50.

34 Christopher Joyce and Eric Stover, *Witnesses from the Grave* (New York: Little Brown & Co, 1991).

35 Godofredo Pereira, "Dead Commodities," *Cabinet*, no. 43, Forensics (Fall 2011): 90–94.

36 Simon Romero, "Latin America Brings Up Its Dead, Seeking Truth to Help Settle the Past," *New York Times*, October 16, 2013.

37 Isabel Kershner, "Swiss Report Supports Theory Arafat was Poisoned," *New York Times,* November 6, 2013.

38 Keenan and Weizman, *Mengele's Skull*, 13.

39 Forensic Epidemiology: Mortality Research in the Field and Forums of Contemporary Conflict, workshop organized by CRASH/MSF and the Centre for Research Architecture/Goldsmiths, December 7–8, 2012, http://www .forensic-architecture.org/audio-video/rt-forensic-epidemiology/. Debates in the seminar centered around the political decisions that go into the making of statistics: whose deaths should be measured and calculated, what is to be left outside of calculations, and what is deemed incalculable.

40 Laura Kurgan, *Close up at a Distance: Mapping, Technology and Politics* (New York: Zone Books, 2013).

41 The research, presented in "Case: Guatemala" in this volume, was coordinated by Paulo Tavares with Daniel Fernández Pascual, in collaboration with SITU Research.

42 Meeting between Dr. Baccard and Forensic Architecture (including the author), March 2012.

43 Bruno Latour, *On the Modern Cult of the Factish Gods* (Durham, NC: Duke University Press, 2010). Although some of the formulation of "forensic" draws upon ideas articulated by Latour's work, in forensic architecture we differ from Latour in maintaining that the kind of truth which political activists and other militants produce cannot be the "well made truth" of institutionalized science, but rather constitutes research that finds traces of ruptures and gaps in the dominant and "well constructed lies" of rich states and corporations.