



Interview with Eyal Weizman

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Contemporary warfare is increasingly waged in urban settings and is often characterized by asymmetry between the parties. This trend is only likely to continue in light of a more and more urbanized world. It is compounded by the fact that belligerents often avoid facing their enemies in the open, intermingling instead with the civilian population, putting civilian lives and infrastructure at risk.

Eyal Weizman is an architect and academic who has spent much of his career writing and thinking about the interaction of violence and the built environment. He has worked extensively on the ways in which war is fought in built-up areas and on how architecture can design an environment that is either more or less conducive to urban warfare. Most recently, he has been developing the new field of forensic architecture, which aims to research incidents that unfold in urban areas, examine the architectural aspects involved and draw patterns from those stories. In this interview, Professor Weizman shares some of his reflections on war in cities with the Review.

Keywords: urban warfare, forensic architecture, the built environment, cities.

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* This interview was conducted in London on 5 September 2016 by Vincent Bernard, Editor-in-Chief, and Ellen Policinski, Managing Editor of the Review.

Tell us about your background. How did you come to work on the interaction of violence with architecture and the built environment?

I studied architecture in London at the Architectural Association School of Architecture, which is known worldwide to be an avant-garde, conceptual school, one that deals with the “source code” of architecture. At that time I was already gravitating towards working on social and political issues. In the middle of our studies, students were supposed to take a year off. During that year – it was soon after Prime Minister Yitzhak Rabin was assassinated – I went back to Israel and volunteered with the Palestinian Ministry of Planning, near Ramallah. There, I realized that the Ministry was working with very outdated maps: although the Oslo Accords had been agreed and the Oslo process was under way, the Palestinians had not been provided with up-to-date cartographic information. After realizing this, I started operating like a small-scale industrial spy: I went into geography and architecture libraries, made photocopies of maps and brought them back to the office. I understood the importance of space and spatial representation in political issues. The lack of up-to-date maps was a political problem.

When I finished my studies, B’Tselem, a human rights group in Jerusalem, asked me to participate in drafting a report on human rights violations through the settlement project.¹ In the early 2000s, there were about 120 settlements. At that time, the plans of settlements were simply dots on the map. Relying solely on the legal principle laid out in Article 49 of the Fourth Geneva Convention – providing that an occupying State is not allowed to transfer its own population to an occupied area – to object to the settlement project, a dot beyond the border line is already a violation of the rule. However, we thought that there was something missing in relying only on this principle, from a human rights perspective. Therefore we looked not only at the location of settlements, but also at the form that the settlements were taking.

As architects we could make a professional judgement, saying to ourselves: “If I were to design a settlement without a political objective, it would look more or less like this – circular in one case, longitudinal in another. But in reality, the settlements look like long and thin wedges. Why is that?” We realized that these wedges were cutting out the West Bank. In Jerusalem, the Jewish neighbourhoods were designed not only to serve their own inhabitants, but also to disrupt the possibility of Palestinians living in and controlling their own space or engaging in trade. By their shape, the Jewish neighbourhoods were dissecting Palestinians from each other. We described this as “architectural violence” – violence that takes place on architects’ drawing boards. This report was one of the first to tie architectural issues to violations of human rights, and that was the seed of forensic architecture as a concept or a field.

1 B’Tselem, *Land Grab: Israel’s Settlement Policy in the West Bank*, report, May 2002, available at: www.btselem.org/publications/summaries/200205_land_grab (all internet references were accessed in December 2016).

Violence operates according to various scales in terms of duration and speed. For instance, there is the slow violence of the settlement project, the slow encroachment of the land – transforming it, draining its water – which is lethal and destructive, but happens over years, if not generations. That slow violence sometimes converts into kinetic violence. The settlement projects require their own security: to have a settlement, you must be guarding it. You also need to patrol it – you need to raid the next town to discourage its population from resistance. This results in kinetic incidents like shootings, arrests, destruction of homes, *et cetera*.

We understood that architecture stands between that slow violence of planning and design, and the fast, kinetic violence. These days, fast, kinetic violence mainly takes place in built-up environments. Built-up environments are complex, not only because the physicality is rather complex – there are many streets and alleys, buildings of various forms – but also because they are the environments of civilians, different groups and, increasingly, the media. Everyone is a media reporter of sorts, recording and uploading content online. It is important to understand that type of violence – kinetic violence that happens in a built-up environment – architecturally. This is how the proposition of forensic architecture emerged, as existing on the spectrum between slow violence and fast violence.

What is the concept of “forensic architecture”, after which you named your research agency, and how did it lead to your reflection on violations of human rights and humanitarian law?

Forensic Architecture, the research agency,² emerged after years of theoretical and historical work mainly on Israel and Palestine, urban warfare, and the relationship between architecture and violence. Forensic Architecture provides such organizations such as the ICRC, international prosecutors, the United Nations, Amnesty International, smaller political groups, and human rights groups with architectural evidence. We aim to make people aware that architecture is a framework with which we can study all sorts of contemporary processes. It is a framework that is absolutely essential because if war takes place in an urban area, traces of this violence are left on buildings. On the one hand, to understand what happened, you need to be able to read a building as a pathologist reads a dead body.

On the other hand, forensic architecture is a concept that also exists on a spectrum between fast violence and slow violence, between the violence exercised on the drawing board and the consequential violence that takes place in the city in buildings, and examines how all of this relates and converges together. Here is another way to look at it: increasingly, in terms of forensics, different bits of

2 Editor’s note: Forensic Architecture is a research agency based at Goldsmiths, University of London. You can learn more about the Forensic Architecture project on its website, available at: www.forensic-architecture.org.

evidence – medical, testimonial or video evidence, munitions – are scattered throughout an urban environment. Rarely does any one piece of evidence operate in isolation. What you need to create is an assemblage of evidence. These are intersections: time–space relationships between the individual pieces of evidence. These are best viewed in three-dimensional models. A lot of what we do is synthesizing huge amounts of pieces of evidence. You can think easily about the relation between three pieces of evidence – the relationship between eyewitness testimony, a gun and a bullet hole in a wall, for instance. But we are often synthesizing thousands and thousands of separate pieces of evidence within space and time in digital 3D models. The 3D model of the architectural environment becomes an optical device to understand the relationship between those separate elements.

Architecture is also important because it bridges the otherwise very firm divide between classes of evidence: witness evidence, material evidence and spatial evidence. Architecture as we use it, both in the Saydnaya project³ – where we reconstructed the architecture of a Syrian prison from the memory of several of its survivors – and in previous projects, is a conduit into memory. It is a way in which to induce recollection and to make it apparent. In interviews within a simulated virtual environment, we can access witness memories that would not otherwise be available.

These are the three main ways in which we see the centrality of architecture emerging, and you can see it against the backdrop of the growing importance of forensics in the field of human rights and international humanitarian law. As new classes of evidence emerge, material evidence becomes very important. This is what we call the “forensic turn”. One of the starting points of the forensic turn is the work of the Argentine Forensic Anthropology Team in relation to the Argentine disappeared, where mass graves stopped being simply sites of national or religious ceremony and became an epistemological matrix from which to understand conflicts. There was a lot of information in those bones and decomposed bodies. Such work was very important in shifting human rights work towards material evidence. We have been relying on that forensic turn and claiming the centrality not of osteo-biographies, but of media and architectural ones.

Can you give us some examples of your current work?

Let me demonstrate the forensic turn as it impacts on different scales of violence, from the small to the bigger scale. On a smaller scale, there was a shooting incident in the West Bank, in Beitunia, on Al-Nakhba Day 2014 [15 May 2014]. A surveillance camera recorded two young teenagers walking along a stretch of a road and being shot. On the CCTV recording, it is clear that they were not involved in anything at the time of the shooting. Later, another video emerged on

3 See Amnesty International and Forensic Architecture, *Saydnaya: Inside a Syrian Torture Prison*, available at: <https://saydnaya.amnesty.org/>.

CNN, in which the soldiers were seen shooting. The problem is to tell the story that exists within these two recordings. Because these events happened in space, we needed to synchronize the videos and locate them in the model in relation to each other. We synchronized all of the evidence, in order to show who shot the teenagers. More importantly, we used a 3D model to locate the video perspectives in space. This is what we call the “architectural image complex”: locating where the point of view of the video exists in space. It is very hard, otherwise, to understand the time–space relation between the videos. We undertook this work for the parents of the teenagers who were killed and for an organization called Defense for Children International.⁴

Compare this to the sort of material that comes out of the US right now – on US police brutality against black bodies – where a lot of the evidence that comes out has the perpetrator and the victim captured in a single frame. That is a good piece of footage, and it could become viral because it tells a story. But most often, in urban warfare, for every piece of footage where you have the perpetrator and the victim in a single frame, you have dozens, if not hundreds, of videos in which you have either one or the other, or some bits before or after, or just the sound, or just an element of the story. With that type of information, you need to synthesize and compose, and architecture is the best medium to do that composition.

We discussed the smaller scale of violence against the human body, now let’s discuss the next scale: the room. We worked on a project for the UN Special Rapporteur for Human Rights and Counterterrorism, Ben Emmerson. He has reported on drone warfare in Pakistan, Afghanistan, Somalia, Yemen and Gaza. The problem was that everyone involved in drone warfare realized that at some point, the pattern of drone warfare shifted, from drone strikes on roads and remote places, to the cities and the villages around them. The drone violence became urban. Together with the drone violence becoming urban, a special kind of missile was developed, the Hellfire II “Romeo”, which was able to penetrate layers of walls and floors in order to reach a certain designated room.

The problem with the ammunition employed in the first generation of drone strikes was that it used a hollow charge, which was developed to be shot at tanks. It was good enough, as long as cars or military camps were being targeted. But when you hit a building, the hollow charge would not be strong enough to destroy it. It would detonate on impact, on the roof, and the jet stream of melted steel would not reach deep enough into the building.

So there was a need for a new class of ammunition with a delayed fuse, which would enter through the layers of floors and ceiling, and reach a designated room before impact and detonation. The Hellfire II “Romeo” can blow up in a room one or two floors under the place of impact. The apologists of this technology referred to it as “humanitarian” because it supposedly reduced collateral damage. In reality, it reduced it compared to the kind of bomb they

4 See Forensic Architecture, *Nakba Day Killings*, available at: www.forensic-architecture.org/case/nakba-day-killings/.

would otherwise use, the quarter-ton bomb, which, in order to kill a targeted person located in a building, had to destroy the entire building and kill everybody in it. So it reduced collateral damage, but it also allowed the proliferation of the use of drones. The fact that it was a lesser evil allowed it to be more frequently applied. The use of that class of munition went hand in hand with the proliferation of drone strikes on cities. Perhaps if they would not have had that tool, less of these strikes would have been authorized by the US legal adviser.

We did a pattern analysis and developed software to look at patterns in time and space. We took all the information on drone strikes from the Bureau of Investigative Journalism, which catalogued each one of the drone strikes from various local news channels and from people on the ground – they had a file of a few hundred drone strikes in Pakistan. Nobody studied the kind of targets that were hit, so we went back to all the articles and started classifying the strikes according to architectural damage. What was targeted? Was it a civilian home, a market building, a public building, a mosque, an open street, an open area, a car? We also looked at the level of damage and created a database with the information.

We started looking at patterns and relations between the information gathered, and we noticed an increase in strikes on cities. The pattern of US drone strikes had to change because the Taliban understood the signature strike: if you drive along this road, at this time of night after calling this mosque or being there, boom. The Taliban moved into the city, stopped driving, started walking, bicycling or motorbiking, or driving animals between buildings. So the US practice changed the pattern of behaviour on the ground. There was a co-evolution going on, pattern recognition from both sides.

There was a certain kind of evidence that came out with this change of pattern in drone strikes that was very distinct. What happens with a delayed-fuse munition that does not bring the building down? It always leaves a hole in the ceiling. We needed to look for holes in the ceiling in order to evidence the increase of drone strikes in cities – that was the architectural cracks of our work. How to connect an architectural detail, a hole in the ceiling, to a policy, and to the increased civilian casualties? The problem was that the hole in the ceiling was about 30 centimetres in size, but the size of a pixel of a satellite image is 50 centimetres: the holes in the ceiling were simply drowned within a single pixel. In order to collect evidence, we used all sorts of video material that was smuggled out of Pakistan at the time, and we had to develop a way to analyze those handheld videos.⁵

Now, let's move up a scale to the level of a city. We were asked by Amnesty International to provide a reconstruction of a period of twenty-four hours during the Gaza War on 1 August 2014. On that day, the capture of an Israeli soldier by Hamas had led to the triggering of the Hannibal Directive. The Hannibal Directive was a secret command that allows soldiers to risk the life of the captured in order to stop the capturing, but is in fact understood by soldiers to

5 See Forensic Architecture, *Drone Strikes: Investigating Covert Operations through Spatial Media*, available at: <http://wherethedronesstrike.com> and <http://www.forensic-architecture.org/case/drone-strikes/>.

mean that they are allowed to – or required to – kill their comrade to prevent him from becoming a prisoner.⁶ Neither Amnesty International nor its reporters were allowed in Gaza, either during or after the war. We had to rely on this new type of testimony that emerged, particularly in urban areas: participant testimony.

First, we had testimonies coming from soldiers, with the help of an organization called Breaking the Silence, which collects Israeli soldiers' testimony. Soldiers are themselves increasingly taking photographs and video, using GoPro cameras, for instance. Soldiers were now documenting their own violations of humanitarian norms or those of their comrades: that is a kind of participant testimony. It is a very different class of evidence than regular testimony, which comes after the fact, as such participant testimony is taken during the acts. There were also testimonies coming from the Palestinians in Rafah.

What was unique about that war was that in April of the following year, Palestine ratified the Rome Statue after long-standing pressure on the Abbas government by Palestinian civil society. So at the time of the war, there was a growing consensus on the subject of joining the International Criminal Court [ICC] between all Palestinian groups, including Hamas, Islamic Jihad and of course Fatah, knowing that it would also expose them to counter-cases over which, potentially, the ICC could have jurisdiction. These developments, together with the simple, very human understanding that when something happens around you, you want, at least, to record it, led to many people risking their lives taking photographs and videos.

At Forensic Architecture, we had thousands of videos and images and we needed to reconstruct a period of twenty-four hours during the war by building a set of relations between those images. One image would show tanks going in, another one would show a building being hit, another one would show a mushroom cloud going over someplace, and another one would show civilians walking with red flags. What is the relation between these events? Sometimes, increasing the amount of images in war does not add clarity but rather creates confusion. There is an incredible amount of images that you cannot make sense of, unless you have the trophy shot of the perpetrator and the victim in the same frame. But this time we did not have that. Instead, we had distributed events and what we needed to do was to stitch them all together through a model. This resulted in us building a model of the entire city of Rafah, in which we located each one of these sources in time and space in order to tell the narrative. This is on the level of the city.⁷

6 For more information on this incident, see Jason Burke, Julian Borger and Paul Lewis, "Israel Bombards Rafah after Soldier Disappears amid Gaza Ceasefire Collapse", *The Guardian*, 1 August 2014, available at: www.theguardian.com/world/2014/aug/01/israel-bombards-rafah-soldier-disappears-gaza-ceasefire-collapse. For more information on the Hannibal Directive, see Judah Ari Gross, "Israeli Army Cancels Controversial Hannibal Protocol", *The Times of Israel*, 28 June 2016, available at: www.timesofisrael.com/idf-chief-puts-an-end-to-contentious-hannibal-protocol/.

7 See Forensic Architecture, *Rafah: Black Friday*, available at: www.forensic-architecture.org/case/rafah-black-friday/.

In regard to the bigger scale, Forensic Architecture is interested in what we call environmental violence – in other words, slow violence affecting the environment. Deforestation is a good example of that. In Guatemala, we were involved in research related to Rios Montt’s years in power. Our information showed that the deforestation of the Ixil-Maya area in the Quiché part of Guatemala was part of the strategy of the military to control the area and in fact part of the genocide, of which Rios Montt was convicted – though he spent one night in prison and then was under house arrest before the conviction was overturned. All of this – the deforestation, the destruction of Ixil villages and the reconstruction of what were called model or concentration villages placed under the control of the regime – needed to be understood spatially.⁸

Now, we increasingly work on the relationship between climate change and violence along what we call the “conflict shoreline” – that is, the aridity line, the line of desert that crosses the earth. The movement of the aridity line – it is moving as climate change gradually shifts the threshold of the desert – ignites or aggravates a series of conflicts along the way. One of the aridity lines – beyond which there is less than 200 mm of rain per year, which scientists define as a desert – starts in North Africa, in Morocco and Algeria, at the northern threshold of the Sahara; it goes through Libya, Egypt, through the northern Negev, where the Bedouins are displaced by the Israeli government, into the West Bank. From the West Bank, it goes into Jordan, then into Syria, Daraa, where the protest that led to the Syrian civil war began. It goes through all the major cities of conflict, including Al-Raqqah, the capital of the Islamic State, and then it goes to Iraq, Iran, the Pakistan frontier, and Afghanistan.

Architects are also doing work on that much larger environmental scale. When somebody is shot or decapitated with a knife, that is an immediate, eruptive type of violence that is sometimes caused by that slow transformation on the environmental level. And we need to see those two as related. These were usually held by different optics, dealt with by different institutions – for instance, Greenpeace would do climate change, and Amnesty International would do the conflict-related work – but now we know they are related. We need to develop a framework that looks across these institutions.

According to the observations you have made in the course of your research, is there more fighting in cities today than in the past?

In armed conflicts right now, almost all of the fighting takes place in cities. The asymmetries in warfare are such that if an armed group tries to resist a Western military – or at least a modern military with an air force – from outside of a city, it will be easily targeted. Daesh could survive for a while along the arteries of the desert, but only because of either the reluctance or the inability of the Syrian

8 See Forensic Architecture, *Guatemala: Operacion Sofia*, available at: www.forensic-architecture.org/case/guatemala-operacion-sofia/.

military to attack them. When armed groups start being attacked systematically from the air, they have to retreat into cities.

This is not a new facet of war; it has always been a feature of asymmetrical warfare. Defensive position in density means that the environment could either be the jungle, such as where Central American resistance movements evolved, or the city. The city is a kind of urban, concrete jungle. An urban environment can level some of the intrinsic asymmetries of non-international armed conflict, because it is much easier for defending groups, which know the city (or the forest), to move through and disappear, to blend in with the population, and so on. This also accounts for the relationship between deforestation as a military tactic – using herbicides in such conflicts as Vietnam in the 1960s and 1970s, Guatemala in the 1980s and Colombia very recently – and urban destruction in such places as Grozny in the 1990s, Jenin in the early 2000s, Gaza in 2008–09, 2012 and 2014, and Sur in Diyarbakir, eastern Turkey, more recently.

How do the different actors involved in armed conflicts – States, armed groups, civilians – use the built environment?

There is a growing body of work by military and security think tanks on urban warfare, which has been developed since the 1990s because of a new set of urban challenges that emerged. The realm of hostilities is no longer either ballistic nuclear warfare or tank-to-tank warfare, and counter-insurgency occurs less in equatorial forests, but instead in urban areas. When this shift happened, militaries were not prepared for it, neither conceptually nor in terms of equipment and hardware. From individual guns and surveillance to the vehicles that they were using, the equipment was meant to serve tank warfare. As a result, the military started thinking about cities quite seriously. Much thinking was done in the US and Israel – the latter being the area on which I conducted my research. Urban and architectural thinking – the academic discipline of urban studies was quite critical and certainly left-wing – were adopted by the military.

What happens when you feel left out of a discourse? You devour it, right? You go into a “hoover” approach to the literature. This is what the military did with the urban literature that was developing in academia over the past thirty years. There was a lot of thinking about cities because really, a process of urbanization accelerated with the globalization of the post-World War II era. Globalization developed sets of relations between cities, including those from the East and South, so the writing on cities mostly came from postcolonial and urban studies, and it emerged because scholars – many of them from either a neo-Marxist left-wing perspective, postcolonial perspective or postmodern perspective – were interested in cities as sites of hybridity – complex sites of both social and economic production.

When the military realized that it did not produce its own thinking on that subject, it acquired a bookshelf that would not shame any left-wing scholar. This was a very paradoxical situation, where the head of the Operational Theory Research

Institute – a security military think tank ran by a doctor in military studies called Shimon Naveh – was teaching his students Deleuze and Guattari – French philosophers of the French left – Foucault, postcolonial thinkers such as Gayatri Spivak, and even artist groups like the Situationist International. Those theories presented a guidebook to urban complexity. The problem of cities is complex: the city is not just a pile of buildings. Everything that happens in the city becomes operationally and politically complex, particularly in media-heavy environments in which civilians and combatants are intertwined. This development led to all sorts of complex systems, co-evolution and co-learning which were more or less successful in military terms at that time.

From a resistance perspective, people normally want to retreat into the area where it is hardest to be found, where they have support and where they can disappear easily. It is only natural that the resistance would move into the densest parts of cities and refugee camps. Simultaneously, militaries in what Derek Gregory called the “colonial present”⁹ – the sort of occupations seen in Afghanistan, in Iraq or in Palestine – understood that the city was to be thought of as a site of heterogeneity: not only as an area in which conflict takes place, but also as the condition that bred conflict. Another example of what this could mean is that for strategists, the refugee camp was not only a site of conflict; the refugee camp was a condition that bred conflict. To break the refugee camp, it would have to be re-planned from a dense area where the sewage runs on the streets, into systematic housing blocks that could be controlled, supposedly, more easily.

A bit like Paris, after the nineteenth-century revolutions...

Of course. The Haussmannization of Paris had many economic and class dynamics at play, but it also had a strategic rationale – controlling the arteries of movement through the city – simply because the resistance to monarchy, and later to the Second Empire, sought to develop autonomous zones by blocking off traffic. In the dense workers’ neighbourhood, this blocking of movement was undertaken by installing the famous barricades. To control a city is to control the means of circulation through a city. To be able to move through it, to be able to get to everywhere you want to go, you need to keep the arteries open, or to make new arteries, by either planning or destruction or the interaction of both. Making wide arteries is always good for militaries that want to control an environment. This was true in nineteenth-century Paris, as it is true in the Balata refugee camp next to Nablus, as it is true in the Palestinian refugee camp in Lebanon.

The military always seeks to resolve political problems through urban/architectural means. A good example of this is the destruction of refugee camps by Israel in the 1970s. Ariel Sharon, who oversaw this campaign, was one of the biggest builders of social housing projects in North Gaza, for example in Beit

9 See Derek Gregory, *The Colonial Present*, Blackwell Publishing, Malden, MA, 2004.

Lahia. The blueprint for the architecture of these social housing projects was simply taken from development towns in Israel and transported into Gaza. The point was to take the refugees out of the camps because, supposedly, they would then not be refugees any more. Identity, Sharon and the Israel Defense Forces thought at the time, was tied to the particular environment of the camp. Another idea was that the refugees would not resist if they had something to lose. This is an age-old idea. Do you remember Levittown, in the United States? It was a suburb, built and run under the idea that anyone who owns their house would not be a communist. Architecture is a good way of creating a thing that can be taken away. This is one of the multiple ways in which architecture and war interact with each other.

You have previously described the tactics used by the Israeli military as “very architectural”. Can you elaborate on this?

Fighting in the city, from both the resistance and the military perspective, requires shaping the city. Sometimes this is done on a micro level – by building trap doors, secret stairwells and halls – and sometimes it is done with bulldozers. It is an analogy that needs to be understood. The bulldozers that went through the Jenin refugee camp in 2004 are a good example of this. If you look at the Jenin camp, one way to understand this type of warfare is to say: “This many hundreds of houses were destroyed; it is this percentage of the city.” That is not an architect’s perspective. An architect would look at which houses were destroyed, and the relationship between them – what does the destruction add up to? And then a kind of logic emerged: a kind of Hausmannization of the Jenin camp. The bulldozer followed a logic in what it destroyed. It opened up the city; it redesigned the city so that it could be controlled.

In fact, when Jenin was rebuilt, partly through a donation from a Red Crescent Society, the roads were rebuilt differently; the roads were made slightly wider to allow the tanks in, because they did not want to see more destruction. The resistance in the camp was unhappy with that, because it meant opening the camp to military control. That is not the role of humanitarians, to make it easier for a tank to move through – and the width of a tank is not the standard benchmark for the width of a street.

Cities and buildings are also instruments of movement, for vehicles and human bodies. What was done in Jenin on the level of vehicles was done in Nablus and Balata on the level of the individual soldier. An example of this is holes in walls left by soldiers’ movements through buildings. Imagine you are sitting here, having a meal, and the wall next to you is suddenly destroyed and soldiers come in. But they are not after you, and soon they disappear through the next wall behind you. To plan this kind of operation, you need to have a three-dimensional conception of the city. Urban warfare does not only happen on the surface plane. It happens above and below – it is volumetric. Sometimes the resistance is at one place, and soldiers are located above and below it. Then,

forces move like a worm in an apple. Rather than existing on a surface, a worm in an apple navigates through 3D models and in all directions. In this way, soldiers need to be thinking like architects, and architects are sometimes commissioned to think like soldiers. Architects might sometimes design a neighbourhood to promote control, and sometimes to aid resistance.

In the past, war-fighting tactics have sometimes been aimed at the total destruction of cities. Today fighting in urban areas seems to take into account the fact that forces need to fight within the city without simply wiping it out, taking into account the urban population. How do you see that in terms of international humanitarian law?

When Hamburg, Dresden and Hiroshima were bombed in World War II, it was through a binary conception of warfare. It was total war. The civilian population was seen [illegally] as part of the war effort, either through industry or through any other form of support for the fighting force. In Japan or Germany, there were no opposition groups that could be supported to create fissures within a political fabric. The understanding was, if you are behind that line, if you are in Germany, then you are part of the war effort. Therefore wiping out cities was, to a certain extent, a product of the conception of war as a binary situation. The city was always a city of perpetrators and therefore, to a certain extent, responsible for what was happening in the Pacific, on the Eastern Front or on the Western Front in Europe. This is of course illegal. It is against international law to attack civilian parts of a city even if this is your conception.

Today many attacks on urban areas are part of a political calculation. Cities can be understood as environments that are already saturated by conflict, between contradictory linguistic, ethnic or political groups of various sorts. Therefore, in urban warfare violence is often applied within a field that is already saturated with internal social and political conflicts. It somehow seeks to open fissures, or intervene within existing conflicts. The military sometimes calls it “injecting kinetic energy into social relations”. A common perception is that within urban warfare, the civilian population is an obstacle in the way of the military. This, however, is not true – urban warfare is about civilians. Civilians are a crucial part of the equation: hurting them or protecting them is part of the strategy. Urban warfare is political in the sense of wanting to influence, to win over the civilian population, to govern them in order to influence their inclinations, to gain their support. Sometimes militaries want to deter – that is, to scare or terrorize civilians into submission, into doing what they want. At other times militaries seek to protect or help civilians so that they do what they want. In this context, allowing medical and other humanitarian aid to reach the civilian population is part of the strategy. So there is a problem with the determination of the killing of civilians as “collateral damage”. Urban war is about civilians, and their fate is part of the aim of the war. Civilians are what this form of war is about.

How would you describe the consequences of modern urban warfare for humanitarian actors?

As a humanitarian actor, you need to know that when you operate in a situation of urban warfare, you are also at risk of becoming a tool. It was made very clear recently, in relation to cities like Aleppo, that humanitarian aid, when controlled by those in power, could become a political and military tool, used to support only the friendly population or as part of a policy of carrots and sticks. Another tactic of urban warfare is to aggravate a humanitarian crisis in a kind of reinstatement of classic siege tactics that tries to control people, or to compel them to surrender by cutting their supplies. Today, however, it is a bit more complex. Supply cannot be completely cut off because of the media, so parties to conflict need to show that supplies would be allowed under particular terms. Contemporary siege warfare is more complex than traditional siege warfare, as it has media and humanitarian aid in the equation.

What role can and should architects and urban planners play in humanitarian action?

I think we need to understand the issue of humanitarian assistance as a proper urban issue. The problem of cities has always been a problem of circulation of goods, of nutrition – of grain, mainly – and from a certain period in early modernity, of medical services. The history of the city emerges as a problem of grain circulation – you can read Foucault on governmentality on that subject.¹⁰ The same goes for public health. Public health is the foundation of urban planning. Humanitarian action is a properly urban type of action, and humanitarians need to start thinking about their practice urbanistically and architecturally. We need to understand humanitarian actions not simply as being based on a statistical problem of numbers of human bodies in space, mouths to be fed and wounds to be healed. The location of a hospital or a distribution centre for food or other forms of aid has an urban dimension. These places affect, sometimes interfere with and manipulate spatial hierarchies; they have an effect on how the city operates or the relations between cities, camps and villages. Thinking of distribution locations and flow is something that could be done together with architects and urbanists.

Architecture is both a framework in which to analyze and interrogate situations, and a means of intervention. Architectural intervention is not always only about bricks and mortar or the selection of a site to build a building on. For example, if you take a school and you turn it into an emergency medical centre, this is an architectural act that affects the way the neighbourhood operates in the long term. We need to think about what kind of effects it creates. What kind of

10 Michel Foucault, *Security, Territory, Population: Lectures at the Collège de France, 1977–1978*, Picador/Palgrave Macmillan, New York, 2009, p. 33 ff.

vulnerability and potential side effects emerge as a result? How does it affect the city, or town, or relations across a periphery? What is its effect on circulation and flow within the city? Therefore, architecture should be part of that thinking.

We have talked about how damage to a city can be read like wounds on a dead body. You seem to be introducing a new idea that there is also a predictability of urban warfare. Could this work be used to prevent conflicts?

I would be very careful with prediction or determination. For example, along the aridity line, you can say that there is increased vulnerability, that some tensions and existing conflict could be aggravated, but in theory, some societies could deal with those changes and they could be absorbed. We have not seen in Morocco the same level of transformation we have seen in Tunisia and Libya, although the effect of climate change has been similar. We are using, with caution, some of the principles of predictive forensics. What is predictive forensics? Well, forensics is usually something that is directed towards the past – the main question is, “What happened here?” – but increasingly, it is moving towards looking to the future.

Predictive forensics is the futurology of contemporary warfare. It studies the future mathematically, using tools that most closely resemble those of risk management used by financial, marketing or security companies. The best way to understand this is through the predictive forensics that the US is doing in Pakistan and Yemen, in targeted killings, where it is assumed that people will commit violence because pattern recognition shows that they will do it – even if they have not yet done it, but are targeted before they have the chance to. The pattern analysis undertaken by the US in Pakistan and Yemen scans various bits of data about people’s lives – for example, their movement along certain roads determined by the Pentagon to be “toxic”, telephone calls to specific numbers, or congregation in particular religious buildings – for patterns that might correspond to a “signature” of behaviour that the US associates with militant activity.¹¹ Under this practice, referred to as “signature strikes”, the US targets people who are determined by an algorithm to pose an “imminent risk”, without their identities or names being known.¹² That is predictive forensics. Predictive forensics is a line of forensics that is also familiar to climate science. The evidence is from the present, but the destruction is in the future. Patterns are non-hierarchical with regard to time. You can look at the future and at the past. You can estimate and evaluate potential vulnerability as they emerge. You could see that a combination of these factors usually leads to violence, and while it is not

11 Columbia Law School Human Rights Clinic and Center for Civilians in Conflict, *The Civilian Impact of Drones: Unexamined Costs, Unanswered Questions*, report, 2012, pp. 8–9, available at: http://civiliansinconflict.org/uploads/files/publications/The_Civilian_Impact_of_Drones_w_cover.pdf.

12 For more on the practice of signature strikes, see Kevin Jon Heller, “‘One Hell of a Killing Machine’: Signature Strikes and International Law”, *Journal of International Criminal Justice*, Vol. 11, No. 1, 2013, available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=2169089.

deterministic, you could say that vulnerabilities will be emerging in this location in the future. So it becomes tactical, operational, rather than legal. The law is quite clear. The law will judge on the past, not on the future.

In 2014, Forensic Architecture began developing open-source software called PATTRN in a project coordinated by Francesco Sebregondi. PATTRN was designed as a crowdsourced platform that allows activists to upload information and then map relations between discrete events, identifying patterns and trends in time and space. PATTRN was conceived to enable citizen-driven participatory mapping. Our aim was to support sharing and collation of first-hand reporting of events by the very people who are subjected to violence, to assemble that data and to produce analysis, eventually bypassing the need for professional investigators on the ground. Crowdsourcing this type of information requires safeguarding the anonymity of users. Data protection is key, and the anonymization technologies that we employ are the main condition of participation in situations when identification of researchers could be risky. Because of this, verification of data can be undertaken not by tracing the provenance of evidence back to the identity of users, but by peer-to-peer correction with minimal editorial oversight. This allows us to minimize the danger for users without rendering the tool vulnerable in court.¹³

PATTRN is employed by several organizations. Some require pattern analysis for identifying trends in past data. For example, the International Criminal Court in The Hague, which is considering opening proceedings against Israel for the 2014 Gaza war, needed to undertake pattern analysis to determine if violations were “widespread and systematic” and has been studying the database of attacks during this war processed by Forensic Architecture software.¹⁴ But pattern analysis can also be used to provide general predictions and indications of where and when vulnerabilities might be expected. Organizations working on the risk to migrants in the Mediterranean used PATTRN to identify the convergence of categories that would help identify such emergent risks or where people might most likely be intercepted or left to die.¹⁵ The accuracy of prediction is based on the quality and quantity of data. Any result needs to be treated with caution, merely as a tactical indicator of possibility. But pattern analysis in the human rights context might open the way for forensic techniques to be used not only for studying the past, but also, tactically, in a predictive manner, oriented toward the future.

13 PATTRN is available at: <http://pattrn.co/>.

14 See FSBRG, “ICC Gaza Methods and Findings, Presentation at the International Criminal Court”, available at: <https://fsbrg.net/icc-gaza-methods-findings>.

15 See Forensic Architecture, *The Left-to-Die-Boat*, available at: www.forensic-architecture.org/case/left-die-boat/.

