
Open-Source Justice

Digital Archives and the Criminal State

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9.1 Transitional Justice in the Absence of Transition

There is a complex interplay of political domination and emancipatory possibility in the newest era of human rights, international criminal law, and transitional justice. New information technologies are now centrally involved in every mass conflict. They are deployed by those in power as information-weapons of censorship and surveillance; and they are used by activists in response, mainly in the form of digital witnessing and investigative tools. In this new information ecosystem, the phenomenon of *open-source intelligence* (OSINT) or (as many prefer) *open-source investigation* has emerged as a global collective endeavor, in which networks of professional and amateur sleuths are making creative use of publicly available digital platforms as investigative resources.¹ There is a wide array of tools available to anyone with a computer, an internet connection, and a bit of curiosity-driven determination, things like the satellite imagery of GoogleEarth Pro, the tracking platforms that follow air and sea traffic, and the downloading/archiving platforms for YouTube, Facebook, and Twitter, among many others. Taken together, these platforms and their users have important implications for the climate of disinformation and impunity that have become prevalent in international law. The use of digital evidence in prosecuting mass crime is going mainstream.²

1 For useful introductions to the origins and methods of open-source investigation, see Dubberley et al. (2020), Higgins (2021), Karpf (2016), Land (2016), Land and Aronson (2018), McPherson (2018), and Niezen (2020, ch. 3). Ball et al. (2000) offer an early discussion of the potential of digital investigation.

2 An important indication of the acceptance of open-source data as evidence comes from the release of the Berkeley Protocol on Digital Open Source Investigations, produced by

The specific politics I consider here have to do with war crimes, more specifically how they are being evidenced, how that evidence is archived, and what the archival and verification process tells us about the difficulties and opportunities of coming to terms with mass violence in conditions of impunity. As this book goes to press, the 2022 Russian invasion of Ukraine is the subject of an unprecedented amount of digital visual documentation. War crimes are being captured by witnesses, uploaded to social media, and investigated in ways that make the veil of war thinner and more transparent than ever before (see, for example, *BBC News* 2022). My specific focus here, however, is on Syrian Archive, an NGO started in 2014 in Turkey by a team of citizen journalists and technologists with backgrounds in digital security, mixed-method and applied research, and human rights (Deutch and Habal 2018, 48–49). They began working with mainstream journalists, human rights defenders, lawyers, and investigators in the International Criminal Court with the goal of creating an evidence-based tool for reporting, advocacy, and accountability relating to the Syrian conflict (see Ristovska 2021).

In their investigative and archiving endeavors, they drew motivation both from the horrors of the conflict and the impunity with which the al-Assad regime flouted international law. A series of reports by the Human Right Council (HRC) and the Organisation for the Prohibition of Chemical Weapons (OPCW) fact-finding missions confirms that during the Syrian war almost every preemptory norm of international humanitarian law was violated with impunity, with the crimes most likely attributable to the Syrian government of Bashar al-Assad and its close ally, Russia (HRC 2013, 2020; OPCW 2020). The Syrian–Russian bombing campaign struck hospitals and schools in a strategy that specifically selected them as targets. (This strategy of bombing civilian targets, to the world’s horror and condemnation, was later repeated in Russia’s invasion of Ukraine.) Syria’s use of chemical weapons in the conflict was the subject of international outrage, but not of a kind that the international community could meaningfully act on or prevent. Impunity extended to Syria’s ability to thwart investigations, for example, by barring access by members of the UN’s Fact Finding Mission (FFM) to the sites of chemical attacks. Syria, in other words, has also committed

scholars in the Berkeley Center for Human Rights in collaboration with the Office of the UN High Commissioner for Human Rights (OHCHR). Available at: www.ohchr.org/Documents/Publications/OHCHR_BerkeleyProtocol.pdf, last accessed April 1, 2022.

acts that in different contexts would constitute the further crime of obstruction of justice. The UN Security Council (UNSC), meanwhile, failed to apply meaningful sanctions or initiate pathways to prosecution in this conflict, with Syria protected by Russia's unconditional veto on the Security Council.³

In this chapter, I look at how the effort to document mass crimes in Syria from technical experts in Europe and the United States – a kind of reckoning-at-a-remove – occurred with a focus on the work of Syrian Archive, its parent organization Mnemonic, and other data archiving projects oriented toward documenting human rights violations through digital visual evidence. Other organizations overlap with Syrian Archive in the goal of providing a safe haven for witnesses and their digital data. For example, Witness, with its motto, “see it, film it, change it,” works to “help individuals document abuses safely and use footage effectively to create positive change in their communities”;⁴ The Whistle, working out of Cambridge University, aims to “amplify the voices of witnesses” and help human rights organizations gain access to their materials “through secure, and simple and trustworthy technology”;⁵ and Yazda, representing the persecuted Yazidis of Iraq under the leadership of the internationally prominent barrister Amal Clooney, has undertaken a Documentation Project that collects, stores, and preserves evidence of the mass crimes committed by ISIS during its occupation of their territory in 2014⁶ – a brutal occupation that led to the conviction of a former ISIS member of the crime of genocide in a court in Frankfurt, Germany (*BBC News* 2021).

Some of these digital archiving organizations are producing and making use of *hyper-authenticated information*, digital data that has been subjected to chain of custody verification and metadata analyses that go beyond the usual standards of journalism to form the basis of direct, courtroom-ready dossiers for the prosecution of international crimes. This form of information is the main innovation that forms the basis of a new kind of NGO, one that goes beyond the usual emphasis on consciousness raising and applying the “disinfectant of sunlight.” A form of

3 Schia (2013) offers a close view of the UN Security Council at work, with the veto of the Permanent Five (P-5) members only part of the way these states are able to control the agenda of the UNSC. Trahan (2020) provides a close study of the legal limits of the veto in the context of mass atrocity crimes.

4 Available at: www.witness.org/our-work/, last accessed April 1, 2022.

5 Available at: <http://thewhistle.org/>, last accessed April 1, 2022.

6 About Yazda. Available at: www.yazda.org/about-us, last accessed April 1, 2022.

organization has emerged, armed with innovative techniques and forms of digital data, that actively *policies* and (where possible) *prosecutes* criminal states and their agents.

Syrian Archive is distinct in its close connection to a specific cause, the cultivation of already intimate personal networks, and the long-term goal of transitioning through the aftermath of mass atrocity. As such, it goes beyond the usual prosecutorial mission oriented toward justice through fines and imprisonment and takes on some of the trappings of transitional justice. The organization's "About" page articulates the expectation that its documentation project "can humanise victims, reduce the space for dispute over numbers killed, help societies understand the true human costs of war, and support truth and reconciliation efforts."

Syrian Archive applies new techniques of data collection and analysis toward undoing the strategic falsehoods that conflict-driven states use to deny the occurrence of events, cast doubt on material evidence, and denigrate the victims of violence to undermine the affect and effectiveness of their testimony. In a way, the archive itself stands in for international judicial process. Digital visual evidence, given truth-value as it is subjected to systematic procedures of authentication, attempts to clear the "fog of war" and its accompanying troll-farmed, bot-fueled propaganda campaigns. Ultimately, what these efforts come down to is a new orientation to uncovering "truth in a post-truth world,"⁷ in which those who were the victims of mass crimes are themselves assembling the evidentiary record of their experience.

At the same time, Syrian Archive is a microcosm of a much wider field of conflict and justice claims centered on issues of truth and selfhood, in which information technologies are reconfiguring the boundaries and meanings of social belonging. To understand what Syrian Archive is and does, it isn't enough to view the images it collects and respond to their horror. The technologies that produce those images, that download them, archive them, securitize them, and make them publicly available, constitute another, perhaps even more important, part of the story. They inform us about the new and still-emerging information ecosystem and our possibilities for finding justice within it.

My way into this subject matter has been, first, by nibbling around its edges. I participated in two training workshops on the methods open-source investigation, one sponsored by the investigative "collective,"

7 "Truth in a Post-Truth World" is a motto of Bellingcat, a digital forensics NGO based in the United Kingdom and the Netherlands.

Bellingcat, and another by the Investigations Lab of the Technology and Human Rights Program at Berkeley Law School. Then I delved further into the techniques and topics of this field while teaching the course, New Information Technologies and Law, in McGill University's Faculty of Law. I had conversations (or "unstructured interviews," if you prefer) with a dozen open-source investigators whose main affiliations were with Syrian Archive, the International Criminal Court, Bellingcat, and the Visual Investigations Team of the *New York Times*. Some of my research would fall under the rubric of "digital ethnography." This includes following step-by-step some of the investigative techniques that members of Syrian Archive and other open-source investigators use to document crimes through digital evidence and following the information they post on social media. Taken together, this multi-stranded exploration brought out some of the key qualities of a new source of prosecutorial power and transitional justice, one that has emerged alongside the technologies that brought it into being.⁸

I now turn to an account of Syrian Archive's struggle, based in a digital arms race for truth-control in the context of an information-technological revolution. The context of this arms race is the relative impunity of criminal states in international law, which raises the stakes of the technology-driven efforts to investigate and expose crimes in international law.

9.2 Impunity and the Information Wars

In the Syrian war, the transition that created a need for transitional justice involved mass exodus from the site of conflict, with refugees fleeing the country, leaving the conflict behind, active and raging. The then German Chancellor, Angela Merkel, staunchly defended an open-door policy, with a "we can do this" (*wir schaffen das*) public assurance, resulting in Germany's admission of over a million refugees by the end of 2018, more than half of whom were from Syria. Those who fled the conflict – some overland via Turkey, others by boat in the Mediterranean – formed communities of refugee-compatriots and fellow sufferers with similar experiences of the war, its destruction, insecurity, loss, the hardships of migrating to Europe, and impotent outrage at the

⁸ More obliquely still, my approach to victim centrism in transitional justice is informed by my long-term study of Canada's Truth and Reconciliation Commission on Indian Residential Schools (Niezen 2017).

impunity of the government that they fled. They brought with them a deep, ranking sense of injustice and a determination to see justice done.

Despite the deep sense of outrage that it inspires, the civil war in Syria has been particularly susceptible to conditions of impunity in international law. Early in the conflict, the Human Rights Commission documented “patterns of summary execution, arbitrary arrest, enforced disappearance, torture, including sexual violence, as well as violations of children’s rights” (UNHRC 2011, 1). The findings from a 2013 inquiry implicated Syrian president Bashar al-Assad in an appalling range of war crimes (HRC 2013); this was followed by a UN-sponsored Joint Investigative Mechanism, which concluded in 2017 that Assad’s government was responsible for the Khan Shaykhun chemical attack. Most recently, the Commission found “reasonable grounds to believe that the Government of Syria, in pursuance of a continued State policy, has continued to perpetrate the crimes against humanity of enforced disappearance, murder, torture, sexual violence and imprisonment. In certain cases, these acts may also constitute war crimes” (HRC 2020, para. 35; see also Syrian Accountability Project 2017). In spite of these findings and a host of other evidence implicating the Syrian government in the most consequential crimes in international law, the Assad government survives politically and acts as though it is undeterred by the accusations and ineffectual sanctions leveled against it.

In some ways, the new media ecosystem deepens and extends these conditions of impunity to the public forums of judgment and shame for the criminal actions of states. The government of Russia, for example, stands out for its refinement of the techniques of disinformation as a political tool. “Refinement” seems an odd word choice to describe a process that on the face of it seems untidy and chaotic, but behind the disorder of state-sponsored disinformation is a carefully calibrated manipulation of the psychology of consumers of mass information. In some ways, governments, through their propaganda efforts, are making use of proven “branding” techniques by which loyalties are cultivated, techniques that have long been developed and deployed in corporate advertising. Disinformation by states that commit mass atrocities, however, is not oriented toward motivating people toward a particular goal but attempts to achieve cognitive paralysis, sowing confusion, and interrupting decision-making processes, and hence criticism.

Narrating the individual experiences of war crimes, even many times over, does not always convince skeptical audiences of government responsibility for them. The pollution of the knowledge ecosystem by

criminal states is all-pervasive, making it difficult to establish context and point to responsibility for a crime. Not even the Syrian opposition's famous civil defense organization, known as "the White Helmets," has been immune from strategic misinformation, with Russian sources accusing the organization of working undercover for jihadists and faking attacks (Bellingcat 2018). Officially known as the Syrian Civil Defense, the White Helmets had become famous as a volunteer organization working in opposition-controlled Syria and Turkey, whose members risked their lives, most visibly in medical evacuation and urban search and rescue in the aftermath of bombings. Images of the rescuers, with cameras mounted on their helmets to record scenes of destruction, pulling innocent civilians from the rubble of recently bombed apartment complexes, resonated globally. The White Helmets received fame, accolades, and donations for their work. Russia and Syria, in corresponding measure, gained an international reputation as war criminals.

Then came Russia's deployment of the kind of strategy characterized by Krafft and Donovan as an "arsenal of tactics that exploit the structure of social media" (Krafft and Donovan 2020, 196). The disinformation campaign against the White Helmets consisted, in part, in identifying and cultivating the voices of those already predisposed to circulating and consuming conspiracy theories. As Eliot Higgins, founder of Bellingcat, explained to *The Guardian*, "The core of the provocateurs was a fringe anti-imperialist community that existed for a while alone. Russia took these people under their wing and used them to start lying constantly about the White Helmets." The Russian news outlets, *Russia Today* (RT) and *Sputnik*, using disinformation as a media "hook," engaged in repetition and amplification. The multiple-venue saturation of the media ecosystem with disinformation was ultimately highly effective, driving the co-founder of the White Helmets, James Le Mesurier, to suicide. Taking a direct approach of denial cannot succeed in undoing such strategic disinformation. As Higgins explained, "the more you engage with them, the more people were hearing what they were saying" (Chulov 2020). Denial is a trap that feeds directly into speculation that there must be some measure of truth behind the accusations. Even when stories have been later debunked, confusion lingers about the intentions and origins behind the stories (Lim et al. 2019). Taking advantage of the moral ambiguity that often surrounds participants in conflict, the Syrian government tried to shift public perceptions of those against whom it was committing war crimes. Persistently repeated falsehoods eventually reframed those civil defenders who had once been received as heroes in

a global public narrative; in the retelling, the White Helmets became violent insurrectionists given to corruption. Whether this narrative was persuasive or not is beside the point. The purpose of disinformation is *not* to convince the skeptical. The blatant lies and contradictions put out by state information agencies might even give an appearance of weakness, of their inability to handle basic facts, as though stricken by a form of institutional dementia. Appearances notwithstanding, however, a strategic goal is still often achieved by these efforts: to undo the effects of damaging information and take control of the narrative surrounding state crimes. At the very least, disinformation produces confusion and opinion-paralysis in consumers of online news, diminishing the sense of indignation that lies behind activist-oriented public judgment.

Under these circumstances, justice campaigners need some other, more convincing, and irrefutable kind of evidence. But what? In many truth commissions this has involved historical records, the documentary evidence that can be gleaned from archives. Hence the “history wars” that involve contestation of the impact of colonization, for example, the contest that focused on the British in Australia (Darian-Smith and Hamilton 1994), or the legacies of World War II in Germany, Japan, and the United States (Hein and Selden 2000). Under circumstances of historical contest, the tools of state censorship sometimes come into play: The lawyer and the shredder – the lawyer to impose and enforce legal regimes of censorship and the shredder to destroy compromising archives when access can’t otherwise be blocked. And when all else fails, there’s always the blunt historical tool of casting doubt on the context, returning to disinformation in the form of repetitive denial, ultimately shaping the narrative that surrounds the archival record.

Disinformation resonates especially powerfully in conditions of insecurity. There is no such thing as an antidote for the effects of informational toxicity. But there is still an important place for campaigns of truth-telling based on trustworthy stories that have the potential to cumulatively shift public perceptions. Witnesses and dissidents have also been empowered by new digital tools. In particular, a form of digital witnessing has been developed that collects evidence of war crimes and intervenes politically by seeking “to create a space that promotes narratives about justice, accountability and future reconciliation” (Ristovska 2019, 344). Many of the same technologies – above all those derived from social media platforms – that states use to weaponize disinformation are being used by dissidents to create armatures of reliable information, digital archives of genocide, war crimes, and crimes against humanity,

new forms of evidence that credibly attribute these crimes to those responsible, with more solid grounding in reliable evidence than ever before.

9.3 War Reporting, Then and Now

While the advent of open-source technologies in international law has every appearance of being entirely unprecedented, there is still an aspect of déjà-vu in its origins and consequences. The history of open-source intelligence is surprisingly long, traceable to the parsing of “enemy” daily newspapers for clues about troop movements in World War I (Pieter Van Huis, personal communication, February 3, 2019).

It has equally deep philosophical roots. In the aftermath of World War I, a controversy arose surrounding the susceptibility of the public to propaganda and its implications for democracy. The Dewey-Lippmann debate turned on essentially the same question with which many are now concerned: the influence of political manipulation of knowledge through new information technologies. John Dewey (2016 [1927]) had faith in the democratic process and its public participants, with education as the key to cultivating an informed base of voters, not readily susceptible to the knowledge manipulation of those seeking power through the (then) disruptive technologies of radio and large-circulation newspapers. Lippmann (1965 [1922]), in contrast, was far less trusting of the public, with his major work, *The Public*, oriented largely toward the propaganda of the Great War and its consequences for the war’s historically unprecedented mass violence. The corollary of his focus on public susceptibility to propaganda was his advocacy of reliance on experts in shaping public policy, without necessary recourse to popular opinion. Very likely Lippmann would approve of the Syrian Archive project, representing as it does exactly the kind of evidence-based war reporting – sidestepping the biases of journalists and state-sanctioned information systems – that he advocated.

One central difference between the World War I era forms of espionage and propaganda and social media-based investigations today resides in the numbers of witnesses and willing participants in investigative efforts. There are new forms of allyship between victims and investigators. A spate of digital tools and platforms is operating through the

additional dimension of “the crowd” or “participatory web cultures.”⁹ Digital witnessing has gone together with new powers of analysis, above all through the extended range of expertise afforded by crowdsourcing, or “the productive potential of millions of plugged-in enthusiasts” (Howe 2006). To this we can add the contributions of those who combine the qualities of whistleblowers and investigators by leaking secret databases. An example is the anonymous individual who made available the Russian motor vehicle registry that proved useful in a recent Bellingcat (2020) investigation that exposed the identities of forty-nine individuals who are likely hackers working for Russian military intelligence (GRU). There is an inherently democratic impulse in “the crowd,” oriented as it is toward applying readily accessible digital tools toward the interests of justice. By collaborating with a network of anonymous grassroots investigators, organizations like Syrian Archive, Bellingcat, the Institute for International Criminal Investigations (IICI), and the International Criminal Court are bringing new information technologies and their enthusiasts squarely into the investigation of international war crimes.

Training workshops are producing a body of internet-savvy investigators who stand at the service of both journalism and international criminal prosecutions. Bellingcat, in particular, is focused on offering workshops for those new to open-source investigation. The only strict stipulation is that participants must not be working for any secret service organization, which would tend to have an inhibiting effect on others who might want to participate. Those participating in the workshop I attended in Amsterdam included a handful of journalism students, a retired couple looking for a new activity, a young man looking for tools to advance the investigation of a murdered relative, and the head of security for a major oil company. With workshops taking place in major cities in Europe, North America, and, more recently, Latin America, the crowdsourcing base of expertise from which Bellingcat and other digital investigation organizations – including Syrian Archive – can draw is extensive and steadily growing.

The sheer number of devices with sophisticated cameras in the hands of potential witnesses has changed the possibilities for witnessing the crimes of states by those subjected to them. In 2019, the number of mobile phone users worldwide had exceeded five billion, with more than

9 The term “crowdsourcing” was coined by Howe (2006) in a now-famous article in *Wired*. The concept has since been elaborated and subject to analysis in, for example, Fish et al. (2011) and Greenberg (2016).

half of their devices being smartphones (Statistica.com 2019). The International Telecommunications Union (ITU) of the United Nations finds that the overall trend has been toward rapidly increasing internet access, with more than half (51 percent) the world's population connected as of June 2017 (ITU 2017). Worldwide, the speed of connectivity is getting much faster too, with fixed broadband services (those having speeds of 256 kbits/s and above) increasing by 183 percent between 2007 and 2017 (ITU 2017). This means that in less than a decade after the release of the first iPhone in 2007, together with other, more financially accessible smartphones, there has developed a global public with the technological capacity to engage in recording war crimes as they happen, constituting a revolution in "digital witnessing" or "participatory fact finding" (McPherson 2018).

All of which is to say, the victims are watching back. Cities everywhere are saturated with smartphones, multi-sensored witnessing-and-memory devices, with some recording and uploading video images to social media, while others find their way more directly to major media outlets. The raw data now being used to bring states to account is "user generated" (Deutch and Habal 2018), "eyewitness media" (Wardle 2018, 300), in the hands of ordinary "citizen witnesses." Whereas in the past journalists vetted every cause and put their words into every story that received public attention, these journalistic filters are now often bypassed, bringing images from the streets directly to social media platforms and from there to the world.

The communication behavior of states responsible for mass crime has shifted in response. State-sponsored disinformation campaigns should be seen as both an offensive exploitation of the exponential growth of instant mass audiences, and a defensive reaction to conditions in which incidents involving state crimes can be readily recorded and the evidence shared with a global audience.

This new knowledge base, in turn, is significantly adding to the protocols and procedures for international investigations. It was, for example, a crowdsourced geolocation led by Bellingcat that contributed to the ICC's indictment of Mahmoud Mustafa Busayf Al-Werfalli, Axes Commander of the Al-Saiqa Brigade in Libya, for the war crime of murder (rendered void by Al-Werfalli's death in battle in 2021). The Court's justification for pursuing the indictment stemmed in part from "The posting on social media of the videos depicting the executions, and the frequency and particular cruelty with which they are carried out" (ICC 2017, 15; see also ICC 2018). Al-Werfalli's very troubling pursuit of

notoriety via social media also provided the means for the crime's location to be verified by an anonymous community of online investigators.

The visual record of the Syrian conflict is unlike the Al-Werfalli case in that the videos made available to investigators and analysts have been uploaded by *witnesses* rather than perpetrators of violence. The volume of this material is unprecedented, with more hours of videos documenting the Syrian conflict than there have been hours in the conflict itself. As of 2019, there were more than fifty videos uploaded to YouTube each day, almost all depicting the acts and consequences of violence. This material has been accumulating since the conflict began in 2011, making it, taken together, "an 'accidental archive' that arguably allows anyone in the world to witness a conflict for the first time in history, practically in real time."¹⁰

9.4 Origins

The Syrian Archive project can be traced to the two-year period 2012–2014, when several informal investigative projects emerged and, tentatively at first, started going about the work of collecting, geolocating, verifying, and archiving evidence of war crimes. It was only then that the platforms were developed that made open-source investigations a viable, widely available, uniquely powerful, source of knowledge and evidence.

The archiving process taken up by Syrian Archive (among other archive-oriented organizations) began as a largely journalistic project, with new types and levels of collaboration emerging between activist-investigators and professional newsrooms. The need for this collaboration followed from extreme conditions of censorship and repression of information, which were imposed early in the conflict, after unrest began in Dara'a in March 2011 and the Syrian government largely barred foreign media from operating within Syria's borders. In response, many Syrians, both those witnessing the conflict on the ground and those who had gone abroad, took up the role of "citizen journalists" (Andén-Papadopoulos and Pantti 2013, 2186). While it is true that citizen journalism was also significant in the Tunisian, Egyptian, and Libyan uprisings, the thing that sets the Syrian uprising apart from other regions caught up in the Arab Spring is the professionalism of the

10 "Syrian Archive's work on content taken down from social media platforms." Available at: <https://syrianarchive.org/en/lost-found>, last accessed April 1, 2022.

revolutionaries' media efforts. With the Syrian revolt, "activism and reporting have become one" (Reporters without Borders, 2012).

The collaboration between Syrian diaspora activists and newsrooms is characterized by the role of networks of activists who act as brokers, "packaging" footage shot by local videographers and submitting or "selling" it to major news organizations through social media platforms or direct submission. News organizations approach crowd-sourced content with suspicion and see verification as a prevailing concern. In response to these concerns, Syrian activists cultivated two key qualities in their network: first, the multimedia strategies that they developed in recording and transmitting video material and, second, the networks of personal knowledge and trust that lent authenticity to eyewitness material. These two qualities came together in the form of workshops that have trained over a thousand people in the techniques of recording and archiving, things like how to film a scene – for example, by focusing less on victims on the ground and giving more attention to a panoramic 360-degree view for purposes of geolocation. That is to say, Syrian Archive, through trust-building and professionalization, has cultivated social capital and expertise within specific information networks that lend eyewitness videos their initial credibility (Ristovska 2019, 341). In some cases, this has allowed them to form close individual working relationships with national, pan-Arab, and global newsrooms (Andén-Papadopoulos and Pantti 2013, 2201). Their personal network allows Syrian Archive to mediate between witnesses on the ground and a wide network of collaboration. It has partnered with over 400 journalists, lawyers, and human rights defenders in Syria along with a number of international and nonprofit organizations, including the UN High Commissioner of Human Rights, WITNESS, Human Rights Watch, Amnesty International, UC Berkeley's Human Rights Center, Bellingcat, the Tactical Technology Collective, Inquiry on Syria, the Syrian Institute for Justice, and others (Deutch and Habal 2018, 49; Ristovska 2019, 339).

Occasionally Syrian Archive's networks of collaboration produce opportunities to go beyond journalism and to pursue justice. A 2019 investigation by Syrian Archive in collaboration with the Flemish magazine *Knack*, for example, used the UN's trade database, Comtrade, to uncover flows of isopropanol (used in making sarin gas) and other chemicals to Syria without the required export licenses. Combing through trade records was a different kind of challenge than the usual open-source visual investigations, but it was consequential all the same. The investigators discovered that between May 2014 and December

2016, there were 24 deliveries to Syria containing 168 tonnes of isopropanol, 219 tonnes of acetone, 77 tonnes of methanol, and 21 tonnes of dichloromethane. These shipments came from three companies working together: AAE Chemie Trading, Anex Customs, and Danmar Logistics. The companies and two of their managers were found guilty in the Penal Court of Antwerp for their participation in these trades. Rolf Rippen, a manager at AAE Chemie Trading, was sentenced to four months in jail, while Herman Van Landeghem, a manager for Anex Customs and Danmar Logistics, received a twelve-month sentence (Marks 2019). The companies themselves eventually went bankrupt.

Syrian Archive has also lent its expertise and evidence to state-sanctioned prosecutions of individuals accused of war crimes. Germany, with its commitment to “universal jurisdiction” – which creates legal space for the prosecutions on German soil for war crimes, crimes against humanity, and genocide – has occasionally facilitated arrests and trials relating to mass atrocity. In 2020, for example, the Higher Regional Court in Koblenz tried two Syrian security officers with crimes against humanity for their abuse and torture of prisoners early in the civil war, which the indictment characterized as “a crime against humanity as part of an extensive and systematic attack on the civilian population.”¹¹ One of the accused, Anwar Raslan, was a colonel in a Syrian intelligence service, making him the first high-ranking official to be tried for state-sponsored torture in Syria. Significantly, the charges were brought against officials whose government remains in power, another first in international criminal law. Legal campaigners have described this case as a breakthrough for international efforts to hold perpetrators accountable for the crimes committed in the Syrian conflict (Hubbard 2020).

On October 6, 2020, Syrian Archive, the Open Society Justice Initiative, and the Syrian Center for Media and Freedom of Expression (SCM) jointly filed a criminal complaint to the Office of the German Federal Public Prosecutor on behalf of the victims of two chemical weapons attacks: the use of sarin gas on the Damascus suburb of al-

11 “Mittäterschaftlich durch eine Handlung im Rahmen eines ausgedehnten und systematischen Angriffs auf die Zivilbevölkerung ein Verbrechen gegen die Menschlichkeit.” Anklage gegen zwei mutmaßliche Mitarbeiter des syrischen Geheimdienstes wegen der Begehung von Verbrechen gegen die Menschlichkeit u.a. zugelassen. Available at: <https://olgko.justiz.rlp.de/de/startseite/detail/news/News/detail/anklage-gegen-zwei-mutmaessliche-mitarbeiter-des-syrischen-geheimdienstes-wegen-der-begehung-von-verbr/>, last accessed April 1, 2022.

Ghouta in 2013, which killed more than 1,500 people, and the northwest village of Khan Sheikhun in 2017, which killed around 100. Both attacks were accompanied by strikes on nearby medical facilities, which had the effect of impeding the emergency medical response. In a press release, Hadi al Khatib, founder and director of Syrian Archive, indicated that the two-year long investigation had compiled extensive evidence that senior Syrian government officials were responsible for the attacks “as part of a widespread and deliberate pattern of targeting opposition-held areas with chemical weapons since 2012.”¹² By gathering evidence and identifying witnesses able to provide testimony to prosecutors, the complainants hoped to advance the eventual arrest and prosecution of Syrian officials responsible for the attacks.

Yet, promising as these developments may be, the prosecution of two corporations and their executives, two Syrian officials in Germany, and the indictment of officials *in absentia* does not nearly match the extent and severity of the crimes committed in Syria. The targeting of civilian neighborhoods and hospitals, the use of cluster munitions and chemical weapons, and the routine practice of torture in prisons and interrogation centers throughout the regions of government control, all remain, relative to the severity of the crimes in international law, effectively unpunished in a political vacuum of impunity.

9.5 Building a File

These conditions of impunity and the tantalizing possibilities of future prosecutions lend energy to Syrian Archive’s central activity: the creation of a new kind of virtual archive, one that collects and preserves eyewitness videos of a conflict in which the main perpetrators cannot (yet) be held accountable. In this context it stores footage, authenticates it when possible, labels it, and posts it to create an information infrastructure that is searchable in future human rights work.

While Syrian Archive cannot claim originality in any one activity or technique it applies to digital data, it combines the available methods of data collection, analysis, and preservation in what amounts to a distinct approach to the investigation of mass crime. Its procedures for handling digital evidence involve four main steps:

12 Syrian Archive, Press Release: Criminal complaint filed on behalf of sarin attack victims, October 6, 2020. Available at: <https://syrianarchive.org/en/investigations/sarin-complaint>, last accessed April 1, 2022.

(1) *Content acquisition*: Syrian Archive takes a “collect-it-all” approach to digital material, based on the principle of not knowing what might eventually be useful. It now holds some three million items in its archive, though only around six thousand of these have gone through the painstaking process of verification. Acquiring visual content that can serve as a record of events in a conflict involves much more than simply collecting video material. Without identifying the source of the material and verifying its authenticity, visual material cannot serve as a credible record of the conflict, never mind as evidence.

Credibility is first determined by analyzing whether the source is familiar to the Syrian Archive or to its existing professional network of Syrian journalists, media activists, human rights groups, and humanitarian workers. With the conflict shifting focus in 2020, Syrian Archive began working closely with media groups in Idlib, with a particular concern being to get data out of the country and onto secure servers. Part of the determination about whether material is reliable begins with the question of who the source is and whether the content and reporting they provided have been reliable in the past. This is usually determined by evaluating how long the source has been reporting and how active they are (Deutch and Habal 2018, 56).

Several things stand in the way of content acquisition, one of the most significant being barriers erected by the Syrian government. Targeted internet shutdowns, sometimes timed to take place in the aftermath of significant events to prevent evidence from being uploaded, are only the beginning. The Syrian Electronic Army, a group of pro-Assad hackers, is responsible for cyber-attacks against opposition groups, news organizations, human rights NGOs, and even foreign governments that are critical of the Syrian regime (Ristovska 2019). Content is not at all secure, even when it finds its way to social media platforms. A strategy used by pro-Assad hackers has been to manually “red flag” content on social media (especially on YouTube) to ensure it is taken down by content moderators before it can be downloaded and preserved by investigators.

Much more consequential than Syrian-backed hackers, however, has been the loss of human content moderators from YouTube, Facebook, and other platforms due to the COVID-19 pandemic and their replacement with machine learning algorithms that, lacking human skills of perception and judgment, have removed thousands of items depicting war crimes more or less indiscriminately. In May 2020, Syrian Archive discovered that over 350,000 videos documenting violence in Syria had disappeared from YouTube, including videos depicting aerial attacks,

violent intervention in protests, and destruction of civilian neighborhoods (Ristovska 2021, 32). Meanwhile, policy-makers' attention to content moderation remains single-mindedly focused on issues of violent content and electoral disinformation, while neglecting to seriously consider the problem of *removal of evidence*. Social media's content moderators are, with little fuss or attention, erasing evidence of war crimes from their platforms, without giving thought to removing them into an archive for purposes of later investigation. It is a bit as though hotel chains were to collectively adopt a policy of cleaning up evidence of murders in their rooms so as to avoid upsetting their guests. Members of Syrian Archive brought their problem to the attention of YouTube and convinced the platform managers to replace some half-million items that were removed via algorithm, but the problem continues.¹³

The process of downloading material from social media, in other words, is a race against time. The action of troll-farms (if red-flagging content can be considered trolling) and machine-learning-driven content moderation create conditions of inevitability to the loss of visual data that could otherwise potentially serve as evidence of international crime.

(2) *Verification, cataloguing, and metadata enrichment*: The Syrian Archive project has also made advances in the standardization of metadata – the information necessary to identify the when, where, and what happened in a particular incident. To this end, it has made a review of practices followed by Bellingcat and other open-source investigators as well as the NIOD Instituut voor Oorlogs-, Holocaust- en Genocidestudies (The Netherlands Institute for War, Holocaust, and Genocide Studies), which revealed that a wide range of information can be applied toward contextualizing raw visual evidence to make it much more credible and useful. Standard measures of the video recording itself – the location, date, and time of recording, and date of upload – and establishing a chain of custody are the places to start. To this can be added *content metadata*, things like weather, landmarks, plants (including species and stages of seasonal growth), insignias on uniforms, dialects spoken, and the target of the attack (was it directed against journalists, civilian infrastructure, cultural property, or against humanitarian relief

13 Allissa Richardson (2020) offers a discussion of “ephemeral social media platforms” with a focus on police violence and the Black Lives Matter movement.

personnel and objects?).¹⁴ This information is accompanied by a geographical map of the country that shows the specific areas where the videos have been filmed. The metadata schema and classification categories used to collect and verify the videos then guide the creation of the databases (Deutch and Habal 2018; Ristovska 2019, 342).

The sheer volume of material it collects has made it necessary for analysts at Syrian Archive to use machine learning algorithms to sort through the data to find specific features in the material they are looking for. For this purpose, it has applied the open-source tool VFRAME toward automated content-based object detection and scene summarization (compressing content into the most representative frames to facilitate analysis). Machine learning algorithms have been trained, for example, to look for cluster munitions, illegal for use in civilian areas. The telltale munitions are subclassed into different visual states (at the most basic level, exploded and unexploded) and then assembled into a hierarchical detection model.¹⁵ Automated content analysis makes it possible to compile a much more comprehensive record of war crimes than would be possible by human viewing of large video datasets.

(3) *Securing long-term preservation*: With Syrian-backed hackers maintaining an interest in the destruction of Syrian Archive's data, members of the organization saw the need for secure backups of their files. But this is in itself problematic. The retention rates for digital storage devices such as external hard drives vary according to a number of factors – things like whether the device is used or “exercised” at regular intervals or whether it has a steady and moderate storage temperature. Then there is the roughly 1 percent rate at which permanent magnets lose their strength every year, leading to the corruption of data. All these factors combine to make the preservation of digital data for more than twenty years an uncertain venture. To address this problem, Syrian Archive has worked with the Institute for War, Holocaust, and Genocide Studies in Amsterdam to overcome the eventual loss of hard drive data by transferring their material to more permanent offline forms of digital data preservation, a task in which the Institute specializes. In particular, it has instructed Syrian Archive in the use of an offline

14 Interview with Jeff Deutch of Syrian Archive, October 1, 2020. See also Bellingcat's explanation of Syrian Archive's metadata collection methods. Available at: <https://yemen.bellingcat.com/methodology/metadata-scheme>, last accessed April 1, 2022.

15 VFRAME, Research: Cluster Munitions Detector. Available at: <https://vframe.io/research/cluster-munition-detector/>, last accessed April 1, 2022.

magnetic tape storage technology similar to that commonly used in the 1950s (revamped and released by IBM and Sony in 2017), but with a longer lifespan than other mediums, up to thirty years.¹⁶

Ensuring the permanence of the digital record is vital for the goals of Syrian Archive for several reasons. First, the power of the visual material depends on its capacity to last for the duration of any possibility of reckoning, remaining available for as long as there is a possibility of a change in the conditions of impunity. The data must last because the archive might eventually perform its ideal function: as a source of evidence in the prosecution of war criminals. As a historical record, the mountain of evidence of war crimes and crimes against humanity is meant to serve as a reference point for knowledge of the war, as a bulwark against revisionism and a slide toward a “both sides” understanding of atrocities. As for the victims themselves, their sense of the significance of their witnessing, of truth-telling against the flood of state-sanctioned disinformation, calls for their visual data and the narratives that go with it to be durable. The words we use to describe the loss of digital data – corruption, erosion, decay – apply equally to the loss of both political freedom and memory (how interesting that the two are in some ways indistinguishable) experienced by the survivors of mass atrocity. Somehow the conceptions all seem to fit. Failures of democracy and corruptions of digital data and memory are inextricably connected.

(4) *Accessibility and raising awareness*: Under circumstances of selective impunity in international law, which favors powerful states and their allies, accountability is left largely to public opinion, informed by journalism. Syrian Archive has engaged in mediation between on-the-ground witnesses and journalists in ways that make the information coming out of conflict areas reliable and useful. Its metadata techniques and standards for authenticating visual evidence mean the items it labels as trustworthy (quite literally, with an authentication stamp) are more likely to be seen and persuade. It has taken on a mediating role between witnesses on the one hand and, on the other hand, the journalists, advocates, prosecutors, and investigators whose work requires reliable visual information. Through its verification and mediating efforts, “visual

16 For information on this storage technology, see Comp Sci Station, Magnetic Tape Storage: Advantages and Disadvantages, April 12, 2018. Available at: https://compscistation.com/magnetic-tape-storage-advantages-and-disadvantages/#Generally_Longer_Lifespan_than_Other_Mediums, last accessed April 1, 2022.

information attains prominence, meaning, and relevance across institutional and legal contexts” (Ristovska 2019, 341–342).

The volume of authenticated data documenting mass crimes has the further effect of pre-empting the falsehoods issued by Syria and Russia or at least – since they issue denials and sow confusion even in the face of incontrovertible facts – of putting the lie to them as historical accounts of the conflict. In this sense, Assad’s legacy as a war criminal is assured, even if he is never prosecuted. As Syrian Archive investigator, Jeff Deutsch, put it, “You can’t do historical revisionism because there’s a mountain of content.”¹⁷

9.6 Digital Evidence Databases and Transitional Justice

What does justice-seeking by the victims of international crime look like in circumstances of ongoing conflict? How do victims narrate their experience and pursue remedy while the intruder is still in their house? There is one significant way that the Syrian refugees’ efforts to document their experience is unlike any truth commission: They are still actively engaged in bringing about the political transition as a step toward post-conflict reckoning. The Syrian expatriates and their allies in Germany, the United Kingdom, and the United States are active in their efforts to identify the crimes of the al-Assad government and its Russian ally, not only as a way to document and come to terms with the past, but in efforts to expose the crimes as they happen. Ultimately, the collaborative efforts of witnesses and data analysts are aimed at bringing the regime’s war criminals to justice. It is a form of post-conflict work being done from a position of active engagement in the conflict.

The usual way of seeking justice is to first look backward to the act(s) of injustice, starting with attempts to find the answers to the universal questions of investigation: who, what, when, where, why. Only then, when the facts are established, is it fitting to seek remedy, whether it be punishment of perpetrators, compensation for victims, or publicly coming to terms with traumatic memory. The pure form of this kind of justice-seeking can be seen in what is widely known as the Perry Mason moment (with its own Wikipedia entry, no less), in which information is suddenly introduced to the courtroom that dramatically changes the perception of the past events surrounding a case, and of

17 Interview with Jeff Deutsch of Syrian Archive, October 1, 2020.

course the culpability associated with them. Even in the victim-witnessing of transitional justice, those who suffered the effects of mass crime are expected to offer something revelatory, to provide new insight into past events, even if what they have to say only adds cumulatively to what was narrated by others before them.

What happens when this order of things is disturbed, when justice-seeking happens while acts of crime are ongoing? Of course, it would be absurd to ask someone to tell their story of victimization while they are still being subjected to bombing raids, torture, the imposition of hunger, and forced displacement. Yet scenarios not too different from this exist in international law, mainly because of the impunity of powerful states and the individuals sheltered by them.

In the Syrian conflict, the need for transitional justice is being felt first at a geographical remove from the usual scenarios of justice. It is taking the form of an uprooted community of war refugees, mostly in Germany, far from the violence raging in Syria, where many still have friends and family. From the relative security of their new homes, concentrated in the German capital Berlin, many have felt a need that is common to truth commissions: to document their experience, to put their stories to work, to collectively assemble a historical record as a way of undoing the campaigns of mistruth being used to cover war crimes. In the longer term, some see truth-telling as a way of preventing similar atrocities from happening again. They are also compelled to respond to Syrian and Russian campaigns of denial through disinformation. If anything, the need for justice in these circumstances of ongoing crime are greater than in the usual circumstances of post-conflict regime change.

Truth and reconciliation commissions are usually designed as a tool to help in the reconstruction of post-conflict societies that have been torn apart by mass atrocity. They are, as in Rwanda's *Gacaca* courts, intended (whether they succeed is another question) to transition people toward the possibility of living with perpetrators, in circumstances in which there are too many to imprison. Or they are intended, as in South Africa, to aid in the construction of a new nation on a radically transformed constitutional foundation.

The justice seeking that occurs through digital witnessing and open-source investigation is unlike any of these previous models of transitional justice. Instead, the efforts toward post-conflict justice and nation building occur *while the conflict is ongoing*. Under conditions of ongoing atrocity, the narratives of perpetration take on a particular character. There is no apology or even admission of responsibility of the mass

crimes. Instead, there is witness affirmation and accumulation of evidence in conditions of criminal impunity and political impasse.

Syrian Archive began its work collecting and verifying digital evidence of war crimes – and connecting that evidence to the lived experience of the people who produced it – even before the smoke (including that from banned chemical munitions) had cleared from Syria's cataclysmic civil war. The then German Chancellor Angela Merkel's 2015 open-door policy on refugees from the war produced both a headline-attracting backlash and a less widely noticed community of Syrian-origin professionals based in Berlin committed to addressing the conflict. This professional community's connections to both those left behind in Syria and various hubs of human rights and technical expertise in Europe made it ideally positioned to facilitate the collection and analysis of a vast archive of digital material relating to the Syrian War, even while the Syrian government and its Russian allies continued to commit a grim panoply of war crimes.

9.7 A New Heroic Role

Who are the heroes in all this? The computer literati mediating between the specialized knowledge networks of open-source investigation and the untrained consumers of information do not take a publicly prominent, heroic role in exposing the crimes of the state. For one thing, their knowledge is comparatively unfamiliar and inaccessible to non-specialists, which makes their actions and inventions known only to those in a small circle of the initiated.

This is not to say that the work they do is without danger. Not only are there the repressive measures of unscrupulous governments to take into consideration, the videos depicting collective violence on which investigators and analysts work have their own violent power. Thousands working as content moderators for platforms like YouTube, Facebook, and Instagram experience high levels of stress and trauma from constantly witnessing violence and hate speech, and the same goes for analysts who not only view violent images briefly, but go through them again and again in the processes of verification and analysis. The public sometimes experiences this too: Social media-posted footage of police brutality – the death of George Floyd being arguably the most widely seen video of this kind – has been an unintended cause of trauma for activists and members of those communities most affected by police violence and, of course, anyone else whose sympathies and curiosity led

them to view it. A data technician once told me of having to vomit immediately on seeing a video depicting an Iranian protester being killed instantly by a tear gas canister fired at close range that struck him in the face, then having to return to that image to do his work of analysis. The same powerful emotions these videos evoke are key to the way they provoke collective indignation. Hateful language and violent videos are vehicles for trauma as well as weapons of accountability, and there is an element of heroism in purposeful exposure to their effects.

Yet, this form of heroism is not publicly recognized, at least not very widely. There is a notable tendency to recognize the courage and resilience of those who are proximate to violence and risk physical injury from it more than those who risk their well-being in pursuit of justice before a computer screen. Why? Psychological harm is no less painful and debilitating than physical injury, perhaps more so. But publics tend to reward particular kinds of heroism – and the particular forms of risk that go with them – in the same way that preference is given to children as ideal victims. The visceral impacts of violence and the deep emotions that provoke sympathy also come into play in attributions of heroism.

Use of the methods of open-source investigation to document ongoing war crimes has gone together with a profound shift in the knowledge base of human rights advocacy. The model that is well described in the human rights literature involves what Sally Engle Merry famously referred to as the *vernacularization* of the universal norms of human rights, the process by which globally generated ideas and strategies are adopted locally (Levitt and Merry 2009). This process entails all sorts of problems, not least of which is the imposition of unwanted norms and practices on those who do not share the same values as the missionary agents of global justice (Merry 2006). The central challenge for advocates was how to bring about compliance at the local level without heavy-handed interference in longstanding cultural practices. In its pure form, efforts toward vernacularization followed from a basic condition of hegemony: The yawning gap between the power and cultural capital of those advocating universal norms and those being subjected to them.

The Syrian Archive model of universal normativity involves transformation at both ends of the divide between rights advocates and local communities. With regard to war crimes, there is no ambiguity about the universality of the basic principles of justice in question. Intentionally targeting hospitals for systematic air strikes and attacking civilian populations with banned chemical munitions are only the more prominent of the peremptory norms violated by the Syrian government and its Russian

ally. They are *without question* war crimes. And with this as a foundation of the justice claims there is no dynamic of hegemonic intervention by human rights universalists in local practice. There is at base common cause across the spectrum of those committed to justice.

With this shared commitment to opposing war crimes and crimes against humanity, the main goal of vernacularization has shifted from universalizing human rights norms to the technical means of gathering and presenting digital evidence. In terms given to us by Greek philosophy, moral virtue (*arete*) has been replaced by technique (*techne*). Activist engagement focuses on such things as the importance of geocoding, including buildings and other landmarks in video evidence of mass atrocities to facilitate geolocation; how to upload videos on social media in such a way that vital metadata, such as date and time, are preserved; adding geographical identification metadata to videos to facilitate later analysis (geotagging); and uploading videos to secure sites to prevent their removal by social media platforms' content moderators, who systematically (usually within hours or days of their initial posting) remove videos depicting violence. The divide between rights defenders and "civilian witnesses" now centers on the technical means for documenting the crimes to which these witnesses are subjected.

9.8 Witness Affirmation

Disinformation campaigns leave consumers of information to their own devices, without adequate guidance or preparation to delve into forensic digital evidence in a critical way. Even judges sometimes have difficulty understanding the steps by which a "deep fake" can be uncovered and distinguished from legitimate evidence. This is enough to introduce sufficient doubt into the minds of enough consumers of information that the story of state crime loses at least some of its persuasive power. How is an ordinary consumer of news expected to tell the difference between the truth and a strategically planted falsehood? Disinformation campaigns leave witnesses largely on their own, unprotected from government-sanctioned efforts at censorship, counter-narrative, and strategic doubt. From another direction, the adversarial form of courtroom evidence finds its way into history wars (or more accurately and awkwardly, "war crime wars"), with witness testimony pitted against the monuments (literal and figurative) of official history.

The kind of digital evidence used by Syrian Archive offers an important form of affirmation, one based in more secure confirmation of

witness narratives than the readily contested content of archives. The meaning produced by its efforts goes further than the creation of a digital archive and its forensic results. Conceptions of victimhood–survivorship, perpetration, and heroism undergo transition as they shift from a field of active violent conflict to a digital-media-struggle over evidence from that conflict. Analysts give witness accounts of mass atrocity coherence and consistency, bringing out the persuasive power of digital evidence, cumulatively amassed and presented in step-by-step accounts of what happened, where, and when. Witnessing is given weight and substance by such things as geolocation of bomb craters to show a pattern of air strikes intended to target civilians and rescue workers attending to victims of an initial attack; by apparent bloodstain patterns visible in satellite imagery that confirm the approximate time and exact location of a mass extra-judicial execution; or by the whistleblower-leaked cockpit recordings of Russian fighter pilots as they drop bombs on Syrian hospitals.

The Syrian Archive initiative differs from the usual witnessing of transitional justice in that it is able to provide *both* the kinds of emotionally evocative witness narratives that are central to victim-centric truth commissions *and* compelling and voluminous evidence that the crimes they are narrating took place. If anything, Syrian Archive begins with the digital evidence, building the foundations of a case against the governments and individuals responsible for crimes in international law. There are two contradictory qualities to digital witnessing. The standards of evidence are so high in international criminal law that witnesses can too easily be overlooked or sidelined as sources of truth. The need for rigorous authentication of visual digital evidence can compromise the legitimacy of unadorned storytelling as a way to narrate experience.¹⁸ At the same time, with the support of digital visual evidence and especially once authentication is complete, witnesses are no longer compelled to narrate their experience into a cloud of skepticism. Their primary goal is not to persuade public audiences. Instead, they have the freedom to talk about what they witnessed and experienced and continue to feel from an unassailable base of knowledge-affirmation.

Affirmation does have its limits, however. In the absence of international prosecutions, what happens to the *perpetrators* of mass violence? What happens to those who caused the harm? What does digital

18 I am grateful to Ella McPherson for leading me toward this insight (personal communication, March 10, 2021).

archiving do to the ways *they* are understood? One thing that digital data can almost never do is provide insight into the motivation of crime. While the commission and consequences of crime are sometimes revealed with remarkable clarity, the *mens rea*, the mental elements that explain the intention to commit a crime, are more often than not entirely absent from the picture. Bombing raids are seen in the devastation they cause, sometimes informed by cockpit audio recordings as the weapons are unleashed, but the source of the order remains a mystery, as does the strategic calculus and emotions behind that order. There is no substitute for compelled testimony to shed light on this dimension of mass crime. In its absence, perpetration is remote – not *banal* in Hannah Arendt's terms, but faceless and inscrutable. This inscrutability remains, even if we know the identity of the individual who gave the orders.

In insidious ways, the unanswered questions of *mens rea* can redound back to the victims. The absence of apparent motivation for acts of atrocity inspires speculation, filling in the blanks. Maybe there's a reason for the atrocity. Maybe there's something they did, something about them, that made them deserve it. The massive accumulation of evidence is another, better way than these kinds of speculations to answer the mysteries of perpetration. The victims' claim to humanity, like state-sanctioned disinformation, is made by repetition, by seeing (or having the possibility to see) the events of atrocity again and again, from this angle and that, in this event and another, until, at last, it becomes unquestionably clear that there is nothing a people could ever do to deserve what one sees in the evidence. The victim ideal is reified.

Yet, this still leaves the perpetrator unknown – and *unknowable* in the absence of their testimony. This makes it difficult to understand the violence suffered, the ideas that underpinned it, and the ways that lethal hatreds might still be there, latent, even when the violence appears to have ended.

The heroic role of exposing these crimes is also diminished for another reason entirely: By the embodiment of heroism in keystrokes, with heightened reputations limited to the small circle of those who understand the game and can appreciate the technical virtuosity in documenting crimes through digital tools. If anything, digital witnessing, while giving greater voice and authority to victims, diminishes the roles of both those who cause the harm and who respond to it. Digital investigations make visible only the weapons of war, their powers of destruction, and those whose lives are destroyed by them. Those responsible for

committing the crimes of the state operate at a remove, invisible behind the bare facts of the destruction and suffering they cause.

9.9 Conclusion: Digital Visual Evidence and the Criminal State

Efforts to document war crimes like those occurring in Syria, Yemen, Sudan, and Ukraine affirm the experiences of survivors in much the same way as the accumulations of testimony that go into truth commissions. They put the lie to state-sanctioned propaganda and false reporting, giving greater clarity to the pathways of responsible journalism and public indignation.

The close focus of digital fact finding on victims makes possible a new kind of witnessing, one closely focused on both the instruments and experiences of suffering. There is an emotional immediacy to visual digital evidence. It is one thing to hear from a mother about the experience of losing a child to a chemical attack and another thing altogether to see her child with pleading and confused eyes, looking at the camera as she struggles for breath. Visual digital evidence does something that documents could never do: reach the sentiments and sympathies of their audiences. Persuasion through this kind of evidence occurs as much through appeals to emotion as to reason.

Reason and honesty in approaching the truth are qualities that drive digital archival efforts. The collection and verification of digital evidence using the tools of open-source investigation are creating evidentiary records of war crimes by states that otherwise would go unconfirmed and unpunished. Witnesses are taking countless images, supported by an array of tech savvy analysts and developers dedicated to protecting them and their evidence. Meanwhile, those with the power to wield the tools of surveillance, censorship, and disinformation are, in fact, as much on the defensive as they are succeeding in their goals. Digital witnessing constitutes the newest frontier in an information technology arms race. Accountability is beginning to extend to the states and corporations that are, for their part, using new technologies of surveillance, control, and strategic disinformation to counteract the effects of exposure.

Taken together, the kind of material assembled and archived by digital visual investigators constitutes a new form of hyper-verified information, a distinct ingredient in the emerging information ecosystem. Such information goes well beyond the usual standards of journalism in its rigor and replicability, to the point that some leading news outlets, the *New York Times*, *Washington Post*, and *BBC* among them, make use of it in

their own “visual investigations” teams as a way to add to their reach and credibility. When subjected to the kind of architectural mapping and analysis offered by, for example, SITU Research and Forensic Architecture, it enters a realm of truth value that is more on the level of a well-constructed and persuasive scientific article. Statements from witnesses are not merely reported; their images are captured, traced in their chain of custody, and subjected to painstaking metadata analysis.

If the goal of hyper-verified information is public persuasion, it has a central weakness: It is difficult to read. More than this, in outreach efforts, it may come across as elitist. It acts a bit like the virtuous, politically alienated cousin of disinformation. Yet, even from a distance, disinformation is there as a foil of its persuasive efforts, pressing analysts forward in their efforts to undo its worst effects.

While some have made efforts to add a compelling storytelling dimension to the articles based on digital visual material, the process of unfolding evidence, step-by-step, in a report based on it does not always lend itself to public entertainment. The visual material on which it is based can be grainy, poorly lit, shaky, or, worse, clear but gruesome in its content. The steps analysts take to verify the material are often highly technical. Meanwhile, disinformation, with its high volume and simplicity, sophisticated only now and then in carefully calibrated appeals to the emotions, wins the day.

A major part of the appeal of hyper-authenticated information is self-referential, giving credence to the witnesses who are at the origin of the material, technologically amplifying their truth. Digital witnessing and forensic archiving provide an answer to the dismal effects of propaganda of the kind first documented by Walter Lippmann after World War I, that has since morphed into another, more pervasive and sinister form with the advent of digital platforms. Official denials and efforts to sow confusion by governments plausibly accused of war crimes and crimes against humanity cannot hold back torrents of evidence, verified by experts and made ready for the courtroom. The efforts of Syrian Archive and other gathering sites of digital evidence point to something powerful in the way their crimes are being exposed and given public attention, a power of persuasion that has vindicating and truth-affirming qualities. Digital evidence takes the burden from witnesses of having to account for the facts of their experience. Rather than have to prove the occurrence of harm, they are able to process it, to do the work of narrating their experience and recovering from loss. Those who want to learn more about the harm itself also benefit from the diminished role

of persuasion. The task of witnesses in these circumstances is not to persuade, at least not in the sense of having to somehow prove the occurrence of harm. Rather, they are given the chance to humanize the evidence, to give it color and context, to make their losses come to life. Meanwhile, the archives are in place, like prosecutorial time capsules, inspired by hope, however faint, in the emergence of a just world order.

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