There's Always Someone Looking at You

Performative Research and the Techno-Aesthetics of Drone Surveillance[1]

Anthony Downey

"What are those?" asked the camera operator.
"Women and children," the Predator's mission intelligence coordinator answered.
"That lady is carrying a kid, huh? Maybe," the pilot said.
"The baby, I think, on the right. Yeah," the intelligence coordinator said.
—Transcript of a Predator drone strike in Uruzgan Province, Afghanistan, February 21, 2010

Technology is far ahead of humanity and ethics.
—Jonas Mekas

In September 2013, Egyptian authorities detained a migratory stork that had arrived in Egypt after traveling from Hungary via, among other countries, Israel. Reportedly captured by a fisherman who viewed the bird with suspicion after noticing an electronic device attached to it, the unfortunate stork was handed over to the local police station in Qena (a city situated on the east bank of the Nile in Upper Egypt). A police report was filed, and the bird was interned. Upon further investigation, it transpired that the "camera device" was, in fact, a functioning tracking instrument attached by Hungarian scientists who were researching avian migratory habits. Through an intercession by Nature Conservation Egypt (NCE), the stork, called Menes, was released into a nature reserve. According to Haitham Mossad, an ornithologist and member of NCE, Menes flew to an island on the Nile where he was reportedly caught and eaten. NCE subsequently released a statement lamenting the bird's demise: "We truly are saddened by the tragic end to Menes' journey, but once again, we would like to thank the park rangers of Aswan for their excellent initial efforts to get Menes the White Stork released safely into a protected area."[2]

This was not the first time an animal had been suspected of espionage, nor was it the only instance. The list is long and includes: fourteen squirrels captured in Iran in 2007 while apparently attempting to infiltrate the country with "spy gear"; two pigeons, supposedly loitering with intent around a uranium enrichment plant, again in Iran, in 2008; an errant vulture detained in 2011 by Saudi authorities on suspicion that it was flying missions for Israel; a bird captured in Sudan in 2012, also accused of spying for Israel; and a vulture tagged for tracking by Tel Aviv University and detained in 2016 in Lebanon when its GPS transmitter raised concerns that it was an agent for Mossad, the Israeli national intelligence agency.

Given that post-2011 Egypt was in the grip of momentous change in terms of its social, economic, cultural, and political circumstances, the story of Menes could be perhaps best understood as an all too acute reminder of the psychological condition of a nation, if not region, that perpetually exists in a heightened state of suspicion when it comes to external forces and, indeed, internal machinations.[3] This event might be therefore peremptorily dismissed as an example of rampant paranoia, overzealousness, and xenophobia. However, as Heba Y. Amin's project *The General's Stork* (2013–ongoing) amply reveals, this apparently bizarre tale reveals something far more profound, not least the ubiquitous shadow of surveillance that prevails over the Middle East in respect of the latent and yet all too real threat of death and injury hailing from the skies above.

The apparent incongruity of indicting or holding a stork responsible for the crime of espionage, as Amin's research astutely uncovers, initially became an expedient way for Western media outlets—which have long had an antagonistic relationship with the region—to highlight what they considered to be both the ridiculousness of the situation and the gullibility of those involved. A spying stork, as Adel Iskandar observes in this volume, "perpetuates the existing narrativization of absurdity around Egypt," and confirms for some the tendency to "see Egypt as a place where strange, mystical things happen and people behave in illogical ways." In an age of social-media communication and targeted disinformation, where a Twitter spiel can go viral regardless of its veracity, the yarn of the luckless stork was simply too good to turn down. *The General's Stork* offers a more nuanced interpretation of those events that avoids reducing the headline-grabbing tale of Menes's demise to a simple fable of xenophobia (or, indeed, ornithophobia or zoophobia). Amin proposes that what happened in this supposedly ludicrous moment readily exposes and lays bare the far from amusing geopolitics of the region—in both its antagonisms and affiliations—and the historical ascendancy of drone surveillance in automated warfare.[4] Her project also addresses one of the key concerns surrounding the legacy of Orientalism and how digital technologies have further secured and recalibrated the West's "imaginative command," to use Edward Said's perspicacious phrase, while, in turn, producing an image regime that renders the entire region—from Pakistan to Libya and beyond—in terms of atavistic threat and belligerent insurgency.[5]

Scopic Regimes and Digital Warfare

In 1917, the British High Commissioner of Egypt, Lord Edmund Allenby (1861–1936), purportedly instigated his own attempt to fulfill a biblical prophecy. The prophecy to which Allenby, a devout Christian, was apparently responding to is found in Isaiah 31:5: "As birds flying, so will the Lord of hosts defend Jerusalem; defending also

he will deliver it; and passing over he will preserve it." Interpreting this as a somewhat anachronistic reference to airplanes, Allenby subsequently ordered a number of low-level flights over Jerusalem to drop leaflets urging its residents to surrender and avoid loss of life.[6] Allenby, as we learn in *The General's Stork*, signed these with his name in Arabic: النبي or *al naby*, which translates as the "prophet" or "son of god." The Ottoman Turks, who had ruled Jerusalem since 1517, were aware of another prophecy that proclaimed that the city would never be taken until a "man of Allah came to deliver it." As a result of this, Allenby was deemed to be precisely such a figure, so much so that the demoralized Turks surrendered the city to a Christian ruler for the first time in four centuries.

In the years leading up to Allenby's arrival in Jerusalem, other aerial-bound devices were being invented, including a form of "pigeon photography" pioneered in 1907 by Julius Gustav Neubronner (1852–1932), a German apothecary, inventor, amateur photographer, and filmmaker. As Amin recounts in *The General's Stork*, Neubronner attached a lightweight camera to a homing pigeon in the hopes that it would take photographs as it flew above cities.[7] The results were impressive and Neubronner's techniques were later employed by the Swiss clockmaker Christian Adrian Michel (1912–1980), who adapted the German's panoramic camera to 16 mm film and enhanced it with a clockwork delay mechanism to control the timing of exposures.[8] Successive advances in aviation technology and photography, which caught the attention of the German army in the 1930s, led to substantial developments in imaging and reconnaissance during the Second World War, where aerial photographs were used to determine troop movements and to plan military attacks.[9] The concepts behind Neubronner's ideas, by way of Michel and others, are today considered

forerunners of mechanized drones or unmanned aerial vehicles (UAVs) and the armed reconnaissance drones that emerged in the 1980s.[10]

A line can be drawn here from Neubronner's pigeons to Michel's clockwork inventions and the ascendancy of automated drones. In the context of Menes's story and the then fractious political climate in Egypt in 2013, it becomes evident that fear of aerial surveillance has become an integral part of the pathology of airspace as it is experienced across vast areas of the Middle East. The sky has become a place from which subjects—often viewed as objects—are scrutinized, categorized, and in some cases targeted (and potentially eliminated) as so-called enemy combatants. In the ostensible absurdity of a bird being arrested, we glimpse the impending menace of the drone. This scenario is made all the more believable by the fact that drone design, as Amin observes, has recently resorted to the science of ethology—the study of animal behavior, specifically the aerodynamics of flight—to perfect UAVs that resemble birds. Allenby's protective birds, the biblical augury of both refuge and threat, metamorphize here into the spectre of approaching death-by-drone.

It is difficult to determine the exact numbers of those killed in the Middle East by drone strikes, due to the secrecy and sensitivities surrounding their use; however, it is known that such strikes increased tenfold under the presidency of Barack Obama. Resulting in somewhere between an estimated 384 and 807 civilian deaths, across Pakistan, Somalia, and Yemen in particular, it has been reported that during Obama's two terms as president—January 20, 2009, to January 20, 2017—there were 563 drone strikes in comparison to the 57 strikes ordered under George W. Bush's tenure.[11] To effect such loss of life does not necessarily involve someone on the ground who is in possession of firsthand knowledge

of the terrain or full demographics of the region; rather, death is delivered remotely, from afar, and from the safety of one of the US Air Force bases that discretely dot the hinterlands of New Mexico, Texas, Florida, California, Nevada, and other highly classified sites.[12] Information from drones deployed across the Middle East, Afghanistan, and Pakistan is typically relayed via satellites to these air-force bases where drone operators make decisions—such as whether to fire a Hellfire II anti-armor missile from a Predator drone—based on the theoretical and qualitative (as opposed to definitive and quantitative) information that is received.[13] And this is where the problems begin: theory, based on technologies that visually enhance the terrain below, is an a priori way of deducing reality from hypotheticals; or, more simply put, the drone operator is not experiencing a firsthand reality but making a decision based on statistical probability and risk assessment (not to mention their conjectural backfilling of what they can and cannot see), which can in turn determine the difference between life and death.[14]

The vectors of engagement here—ranging from partial information sourced on the ground, digitized data from drones, satellite imaging from airspace, and human input from an army base located in the United States—are supposed to seamlessly connect within a system that can deduce reality and thereafter eliminate "combatants" and other threats, while also ensuring no resulting danger to either the drone operator or, supposedly, anyone deemed a "noncombatant." The reality is often not only far from this neatly plotted arc of military-command structures, but is also sometimes in direct, inevitably injurious if not fatal, contradistinction to it.[15] Being seen, whether you are a combatant or a noncombatant, is equivalent to courting death—and the central element here involves the

technological manifestation, or operation, of a digital image that gives both form and appearance to a subject (target). This is the domain of techno-aesthetics, where the correlation between utility—or, to use Harun Farocki's phrase, "operational images"—and reality (appearance) becomes potentially lethal.[16] In this scopic, invariably inequitable, regime of observation and transmission, the techno-aesthetics of drone surveillance, despite the obvious epistemic dilemmas—*how do we know what we know and by what means do we know it*—that attend the technology involved, fatally dovetails with the necropolitical and terminal logic of digital warfare.[17] Or, as Martin C. Libicki succinctly puts it, in this ascendant paradigm of perceptibility and exposure "visibility equals death."[18]

The surveying, mapping, and bombing processes involved in drone warfare are approximate—virtual and abstract in aesthetic and actual terms—and yet have real-life, often calamitous, repercussions. We need to ask, therefore, what exactly constitutes the substantive nature of the images being produced and who decides on their veracity, not least when their apparent "truth" can predicate death? In some instances, drone operators, carried away with the "unreality" of it all and likening their activities to gaming, imagine (through digital imaging) nefarious activities where they do not exist. An overactive imagination, despite training, can yield death. Disregarding the potential impact of a missile on actual people (as opposed to digitized abstractions), drone operators often go ahead and give orders that result in mutilation, disfigurement, and multiple civilian casualties.[19] This has produced, over time, a collective mistrust of what might come from the skies and what could potentially happen to those who dwell beneath its firmament.

If we consider the documentation for *The General's Stork* alongside the performative presentation of

Amin's findings, then it is notable that the research methodologies employed owe, in part at least, something to investigative journalism.[20] Given the subject matter in hand, this is no doubt appropriate: we are, after all, considering matters of life and death. To this end, there is also a circumstantial evidentiary context being developed throughout this research, whereby a case of sorts is being made and a method of investigative analysis is being promoted. This point is expanded upon in the conversation in this volume between Amin and the filmmaker Laura Poitras, where the latter notes how often the material she uncovers becomes "newsworthy" and subsequently referenced by legislative and political agents: "I've been interested in that as a methodology and partly as a strategy, because institutions don't always feel comfortable talking about classified information. In other words, we can launch something in the news at the same time as we put it in the museum." In this context, Amin's project tends to methodically engage with historical material—be it allegorical, apocryphal, evidentiary, virtual, or otherwise—and subject it to a speculative model of inquiry *within* the cultural context of a museum or gallery. Bearing this in mind, Amin's investigative, speculative research *is* her artistic practice. Revealing as it does the symptoms of widespread paranoia (not least a bird accused of spying), *The General's Stork* draws on multidisciplinary fields of inquiry—including digital optics, the technology of warfare, colonial and neocolonial history, the contemporary politics of warfare, techno-aesthetics, data analytics, ordinance mapping, and, of course, ethology and ornithology—to effect an exploratory cultural treatise on the historical prevalence of surveillance technology and the techno-aesthetic regime that has been brought to bear on how the Middle East is visualized. Thereafter, such material can

indeed become newsworthy in its own right, inasmuch as it relates to the realities of drone-ordained life and death in the Middle East.[21]

The globalized presence of the digitized gaze, defined by the ubiquity of the drone and made manifest in the techno-aesthetics of the images produced as a result of its operations, is not only a deterrent (being watched promotes normative behavioral patterns, however surreptitious they might turn out to be), it is also a means to subjugate and define subjects in prohibitive, proscribed terms. Drone surveillance has ushered in its own techno-aesthetic realm for producing the realities of the Middle East—in both subjective and objective terms—based on rampant suspicion and intrinsic fear, not to mention the premonition of retaliation.[22] This logic is, of course, historically embedded in a martial framework, whereby the ambition to disambiguate the distinction between combatant and noncombatant is linked to improved processes of killing.[23] To see is to capture and to be rendered visible is to be bound to death.

In this sense, the allegorical and metaphorical meaning of the term "scoping," a word that has a number of interlinked meanings that range from active looking (or reconnaissance) to how we might, through strategic farsightedness, better identify and eradicate an enemy, becomes more obvious. A scope is a material entity that can represent, in its suffix form (-scope), both an instrument utilized for looking and the act of looking at, if not capturing, the object of the gaze.[24] In referring to that which is aimed at or desired, or the objective that one wishes to effect or attain, this calculated elision between the actual instrument and the object under observation enables an event of seeing that encompasses a transitive action, insofar as it is an act that is carried over from the object (scope) to the subject (that which is scoped).[25] It is an act of looking that demands an object to complete

its function and ambition. This judicious conjunction between viewer, object, and the attainment of a subject through active realization—the desire to see being a desire to not only behold but hold—is a readily applicable means to understand the apparatus of surveillance and how drone technology effects a fluid movement between the viewer (in this case the gaze of the machine and, by extension, the drone operator), the object (the subject of surveillance), and the execution of a desired outcome that is often quantifiable in terms of annihilation.

The degree to which the surveillance technologies associated with satellites and drones continue to be developed, by the United States in particular, and with the Middle East in mind, discloses yet another element in the otherwise poignant tale of Menes: the region known to us as the "Middle East" is not only a readily discernible historical construct, but it has been largely created to conform to the unyielding and obsessive gaze of Western-centric imaging systems and the distrustful imaginations of neo-imperial ideologues. The means by which this gaze produces the Middle East as a site of repressed desire, recurrent threat, and imminent terror have shifted in time from the relatively analogue processes behind photographic and filmic representation to the digitized technologies of drone surveillance. The imaging and imagining of the region have also evolved in both intent and outcome. Whereas, in its historical and ideologically driven intent, the embodied gaze of the camera-eye produced an image intended for the human eye to view, those forms of corporeally invested observation have been augmented since by a closed, autonomous method of scrutiny, whereby machines generate images that are only ever viewed by other machines. This is, in sum, the epoch of the machine-eye or, recalling Farocki's terminology,

it is the dominion of "operational images," wherein which the Middle East is produced as both a present-day and future reality. The techno-aesthetic image, based on the utilization of operational images, not only gives form (appearance) to the Middle East but also adumbrates—presents it in outline *and* simultaneously foreshadows it—the future substance and materiality of the region's contested topographies.[26] This ultimately involves, to revisit and revise my earlier point, an automated act of looking that not only demands an object to complete its functional surveillance, but a long-term, future-oriented objective within which to fully realize its imperial ambitions.

Images made by machines for machines are not being generated to represent subjects or objects; rather, they are part of an operational, insular context that has become self-referential and self-serving. They are autonomous systems of interpretation and empirical deduction that further reveal (and enable) the collusive and corrosive representational strategies deployed by both Orientalism and, seamlessly, Neo-Orientalism. While simultaneously centralizing mechanized models of image production within the realm of unaccountable state actors, military-industrial technologies, and sovereign forms of power, these systems of image-making have given rise to an image complex that has spawned a techno-aesthetics of digital surveillance that further maintains the hegemonic ascendancy of the unseeing machine eye. And it is with this in mind that we can more fully understand the implications behind a seemingly absurd story of an unfortunate bird and his untimely demise: we no longer need to see images of the Middle East, but, if the scopic regime associated with Orientalism is to maintain its ostensibly interminable power to determine the realities of the region as a whole, we do need machines to see them.

Algorithmic Anxieties and the Future of Death

In the context of the techno-aesthetics produced by UAVs, drone warfare not only generates a psychopathological relationship to airspace based on anxiety, fear, and trepidation, but also consigns and delivers the Middle East to new forms of visibility and visualization to combat such fears. Conflict, in this reciprocal logic, is viewed as a region-wide phenomenon capable of emerging from anywhere and everywhere at once, while territorial control is contingent on the technological means of visualization, rather than occupation. The apparent ubiquity of hostility was a mainstay of colonial discourse, but its technological manifestation through the means of a digital eye exposes a set of circumstances whereby the techno-aesthetics of visualization—the (operational) means of envisioning and the synchronized manifestation (appearance) of the image as a targeted object—is irredeemably imbricated within a seemingly reciprocal and yet unending replay of future conflict and threat.[27]

Considering the spectacle of the first Gulf War in 1991 (as it was presented through videos of "smart bombs" seeking their targets), the more recent 2003 bombings of Iraq, the use of drones during the Libyan civil war, and the intervention of drones in Syria in 2014, it is easy to see how the Middle East has become a testing ground for such image-making systems. While there are numerous points of evolution between the corporeal and the digital, future-oriented gaze of drone surveillance (between, that is, Orientalist aesthetics and the techno-aesthetics of drone surveillance), we nevertheless need to pose a crucial question: What if the techno-aesthetics produced by the machine gaze gives rise to an image of the region that—through "operational images"—is not only unhinged from the frames of reference associated with the Western image regime that underwrote colonial fantasies, but from all previously understood regimes of viewing and conceptual understanding?

In an age of networked systems of digital communication and advances in imaging techniques, drone warfare is driven by and defined through artificial intelligence (AI), augmented reality, and opaque algorithms. These technologies are increasingly produced in the realm of private companies that are vying for government-sponsored military contracts—a matter of concern that needs further attention.[28] In a military chain of command that enables fatal mistakes to enter into the process, however, faults are often attributed to "human error." Unmanned drones, already implicated in bypassing human operators, could be vastly improved by algorithmic means—or so we are told—so that human error would be eradicated. In this scenario, algorithms increasingly control death-delivering missiles and consequently repudiate any moral obligation for the act of killing.[29] If we can automate the procedures involved in the empirical deduction of reality and thus, through algorithmic modification, denude the entire process of the subjective view of a human, then we not only enter the realm of "operational images," we also cross the threshold of moral and ethical culpability. If drones are producing images for other drones and machines to understand the difference between combatant and noncombatant, then the very process of imaging is self-referentially looped in a holding pattern that can endlessly replay a version of the region for the sole purposes of mass surveillance and the administration of death with impunity.

The affiliation between AI, algorithms, and drones being forged in the military-industrial and private sectors continues to give cause for concern, inasmuch

as these systems enable UAVs to learn and to "think" for themselves. Powered by such technologies and relying on in-built algorithmic forms of machine-learning to function, drones can self-referentially make decisions on whether to bomb or not. Questions of advanced probability coalesce here with a risk-free, unprincipled approach to killing. Add to this the advances made in augmented reality, the blending of physical and digital environments, and we can see how a military-industrial complex can produce the very reality of a territory—through technological and ideological means—that further warrants the long-term invasion and subjugation of an entire region.[30] Algorithms, often mistakenly seen as abstract, dispassionate, and detached entities, are the product of data sets—images used to train machine-learning methods and improve algorithmic performance levels—and come complete with their own embedded biases.[31] The ensuing techno-aesthetics of digital surveillance has given rise to an ascendant topographical contouring of the Middle East—a quartering of time and space—based upon biased forms of risk assessment that can only ever reproduce nascent forms of inauspicious subjects from within the logic of an apparently unending war on terror.

Drone technology, determined by the ominous rationalizations of algorithmic bias, will not only target individuals deemed as a threat in the present, but will predefine what constitutes that threat in the future. This is the underlying principle of the techno-aesthetic command associated with the necropolitics of drone vision: it is no longer implicated in dispatching death in real time, but also in the process of preemptively marking the targets of drone-decreed death for future elimination. For Achille Mbembe, whose work on corporeality and the rationalizing logic of the necropolitical realm was alluded to earlier, necropolitics defines the

right to *subject* others to death, rather than just the right to kill. This, often extrajudicial, sentence of impending if not looming death also, momentously, defines who will live. This is an important distinction as it summons up an image of the walking dead rather than the dead—a vision of a life lived in limbo awaiting preordained death that has no limits or time frame of completion other than the algorithmically impenetrable, and yet politically rationalized, demand that it be neutralized and destroyed. Political exigencies, driven by technological advances in surveillance, traduce and yet continue to determine the ethics and efficacy of death-by-drone. Mbembe writes: "In our contemporary world, weapons are deployed in the interest of maximum destruction of persons and the creation of death-worlds, new and unique forms of social existence in which vast populations are subjected to conditions of life conferring upon them the status of living dead."[32] The calibrated desire to kill, supported by algorithms and drone technologies, is implicated here in an anachronistic temporality whereby someone or something is posited as existing in a future historical order—an order of approaching death. The impulse to kill is therefore proleptic: it collapses chronology and potentially defines the future—in which death will be administered from the sky above—as having already happened. This is perhaps the fateful (fatal) logic of "operational images" and the techno-aesthetic visual complex that they give rise to: in a worst-case scenario, we will not need to see images of the Middle East, machines will do that for us, but we will also not need to contemplate images of death as they will be always forthcoming and just about to happen, somewhere out of sight but not, needless to say, out of range.

In her project, Amin repeatedly poses the following question: What is at stake in the moment of covertly

and digitally representing a region that is in itself already a symptom—or mediated manifestation—of a systemic representational logic that has existed within colonial discourse since at least the eighteen century? This is not only about the future of surveillance but the future imaging of the Middle East through a system that, given its neural networks, advanced technologies, seemingly endless resources, the support of private interests (such as Microsoft, Amazon, and Google), big data, and the acceleration of AI technology, will effectively produce the image regime that will define the realities of the Middle East for generations to come. Throughout *The General's Stork* and the research that underwrites its findings, suspicions about a "spying" stork, regardless of how bizarre they may at first appear, are intimately associated with this global interlocking of surveillance technologies, territorial plotting, imperialist expansionism, and drone warfare—and these concerns, far from being regional, are at the forefront of global debates about the future of life and death in our anxious age of algorithmic reasoning.

1 This title is a reworking of The Boomtown Rats' single "Someone's Looking at You," the third and final release from their 1979 album *The Fine Art of Surfacing*. The song contains the lines: "There's a spy in the sky / There's a noise on the wire / There's a tap on the line / And for every paranoid's desire ... / There's always someone looking at you."

2 Quoted in Conal Urquhart, "Arrested 'Spy' Stork Killed and Eaten after Release in Egypt," *Guardian*, September 7, 2013, https://www.theguardian.com/world/2013/sep/07/arrested-spy-stork-killed-eaten-egypt.

3 In Egypt, such sentiments were advocated by its former president Hosni Mubarak, and later perpetuated by his replacement Mohamed Morsi, the latter being the short-lived fifth president of Egypt from June 2012 to July 2013. Since his election to the presidency in June 2014, a similar degree of guardedness and suspicion continues to be propagated by Abdel Fattah el-Sisi and the security apparatus of the Egyptian state. Morsi, who was replaced by Sisi on July 3, 2013, was jailed pending trial and later collapsed during a court hearing and died of a heart attack. He was, perhaps uncoincidentally, being held on charges of espionage.

4 This point is further reinforced when we learn, through Amin's copious research, that there is also a military site based in Qena, where we first came across Menes, that goes under the deceptively inoffensive name of Site Alpha. This was one of the military bases involved in the ill-fated attempt to free the fifty-two American diplomats and citizens who were held hostage—from November 4, 1979, to January 20, 1981—during the Iran hostage crisis. Site Alpha, Amin's research further divulges, was a former Soviet air base, a leftover from the days when the Russians and Egyptians were in a Cold War alliance of convenience based on a shared distrust of the "West" and its military ambitions in the region.

5 The colonial infiltration of the self-proclaimed "West" into the Near East and other territories, Edward W. Said argued throughout *Orientalism*, went hand in hand with the production of systems of knowledge that secured, tentatively and yet persistently, the colonizer's "imaginative command" over the colonized. This command, for Said, was systematic and irrefutably implicated European culture—during the post-Enlightenment period and thereafter—in producing, rather than reflecting on, the "reality" of the so-called Orient through political, social, militaristic, ideological, and scientific discourses. For Said, the power of this command reveals the sinuous collusion of colonial knowledge with power and, in turn, the extent to which the "authority of academics, institutions, and governments can accrue to it, surrounding it [knowledge] with still greater prestige than its practical success warrants. Most important, such texts can create not only knowledge but the very reality they appear to describe." See Edward W. Said, *Orientalism* (1978; repr. London: Routledge and Kegan Paul, 1980), 94.

6 The subject of leaflet dropping, in relation to the Middle East and beyond, is likewise the subject of Rabih Mroué's nonacademic lecture-performance *The Crocodile Who Ate the Sun* (1982/2015), in which he refers to the dropping of leaflets in Beirut in 1982 and compares it to similar instances in Japan during the Second World War and, later, in Palestine.

7 This was not the first time that airborne technology was used to photograph land and townscapes. Gaspar Felix Tournachon, commonly known as Nadar, is widely acknowledged to have taken the first successful aerial

photograph in 1858. This was done from a hot-air balloon tethered 262 feet over Petit Bicêtre, a small town outside of Paris. Later, in 1860, James Wallace Black positioned a hot-air balloon, the so-called Queen of the Air, two thousand feet above Boston. Nadar's images were lost, so Black's view of Boston is considered to be the oldest surviving aerial photograph. For a fuller account of aerial photography and its effects on how we view the world, see Paula Amad, "From God's-Eye to Camera-Eye: Aerial Photography's Post-humanist and Neo-humanist Visions of the World," *History of Photography* 36, no. 1 (2012): 66–86.

8 Michel's original plan to sell his camera to the Swiss Army was unsuccessful; nevertheless, following the outbreak of the Second World War, he went on to patent a shell and harness for the transport of items, such as film rolls, by carrier pigeon. For an overview of the variable exposure timer, in particular, its patent and design, see https://www.christies.com/LotFinder/lot_details.aspx?from=searchresults&intObjectID=4001985.

9 A more contemporary version of such practices involves the use of "intelligent drones," or, less succinctly, the deployment of albatrosses fitted with lightweight radar detection devices used to identify illegal fishing ships in remote locations. See Eleanor Ainge Roy, "'Intelligent Drones': Albatross Fitted with Radar Detectors to Spot Illegal Fishing," *Guardian*, January 31, 2020, https://www.theguardian.com/world/2020/jan/31/intelligent-drones-albatross-fitted-with-radar-detectors-to-spot-illegal-fishing.

10 These include the Predator and Reaper drones. Armed with two Hellfire air-to-surface missiles (ASM), the Predator drone has both reconnaissance and offensive capabilities. Initially developed by Abraham Karem, the former chief designer for the Israeli Air Force, the original technology for the Predator was encased in the so-called Amber drone. Karem is considered to be the founding father of UAV (drone) technology, having built his first one for the Israeli Air Force during the 1973 Arab–Israeli War. The Predator entered service in 1995 and has since been deployed in Afghanistan, Pakistan, Iraq, Yemen, Libya, Syria, and elsewhere.

11 For fuller details, see Jessica Purkiss and Jack Serle, "Obama's Covert Drone War in Numbers: Ten Times More Strikes than Bush," *Bureau of Investigative Journalism*, January 17, 2017, https://www.thebureauinvestigates.com/stories/2017-01-17/obamas-covert-drone-war-in-numbers-ten-times-more-strikes-than-bush.

12 In 2012, it was estimated that there were sixty-four drone bases in the US. See Lorenzo Franceschi-Bicchierai, "Revealed: 64 Drone Bases on American Soil," *Wired*, June 13, 2012, https://www.wired.com/2012/06/64-drone-bases-on-us-soil/.

13 Interestingly, given the allusions to aviation, Lord George Curzon, the Secretary of State for Foreign and Commonwealth Affairs of the United Kingdom (1919–24), called Afghanistan "the cockpit of Asia." See Ahmed Rashid, *Taliban* (London: Yale University Press, 2001), 7.

14 Throughout *Drone Theory*, Grégoire Chamayou notes how the supposed psychopathological effects of drone warfare—the mechanics of killing from afar—on operators located in the US, for example, has led to a process whereby the latter are supposed to suffer post-traumatic stress disorder (PTSD); however, as Chamayou further observes, such forms of psychopathologicization—the suggestion that operators suffer, experience stress, over-empathize, and endure emotional exhaustion, fatigue, and burnout—can serve to humanize the life-or-death decisions that these operators make remotely, and thus return debates to the question of morality and suffering, albeit in respect of the drone operators rather than their targets. This sleight of hand, so to speak, can, in turn, publicly rehabilitate the ideal of homicide by drone, and further quash moral and ethical debates about the automization of death. See Grégoire Chamayou, *Drone Theory* (London: Penguin Random House, 2015), 106–13. Another recent work that examines the psychopathology of drone warfare is Omer Fast's *5,000 Feet Is the Best*, produced in 2011. For an analysis of this film in terms of labor and the bureaucratization of killing, see Peter M. Asaro, "The Labor of Surveillance and Bureaucratized Killing: New Subjectivities of Military Drone Operators," *Social Semiotics* 23, no. 2 (2013): 196–224. In what follows, I am more concerned, however, with the pathological effects of drones on those who are subject to their surveillance and threats of death.

15 The epigraph to this essay, for example, is taken from a transcript that was originally quoted in an article by David S. Cloud where he described an attack on three vehicles in the Uruzgan province of Afghanistan and the ensuing deaths of twenty-three civilians on the morning of February 21, 2010. See David S. Cloud, "Anatomy of an Afghan War Tragedy," *Los Angeles Times*, March 14, 2014, https://www.latimes.com/archives/la-xpm-2011-apr-10-la-fg-afghanistan-drone-20110410-story.html. The same events are cited at the outset of Chamayou's *Drone Theory* and, in a different context, in Lauren Wilcox's "Embodying Algorithmic War: Gender, Race, and the Posthuman in Drone Warfare," *Security Dialogue* 48, no. 1 (2016): 11–28.

16 Farocki used the phrase "operational images" to describe images made by machines for machines, the full implications of which he explored throughout his three-part film *Eye/Machine I, II, III* (2000–3). These machine-oriented images are not produced in relation to representing either subjects or objects; rather, they are part of an operation. For Trevor Paglen, writing of this phenomenon, Farocki "was one of the first to notice that image-making machines and algorithms were poised to inaugurate a new visual regime. Instead of simply representing things in the world, the machines and their images were starting to 'do' things in the world. In fields from marketing to warfare, human eyes were becoming anachronistic." See Trevor Paglen, "Operational Images," *e-flux journal*, no. 59 (November 2014), http://worker01.e-flux.com/pdf/article_8990555.pdf.

17 I draw on the phrase "necropolitics" from Achille Mbembe's eponymous essay in which he details the links that have "emerged between war making, war machines, and resource extraction." The phrase is often discussed in relation both to and in distinction from Foucault's notion of biopolitics. See Achille Mbembe, "Necropolitics," *Public Culture* 15, no. 1 (Winter 2003): 33.

18 See Martin C. Libicki, quoted in Antoine Bousquet, *The Eye of War: Military Perception from the Telescope to the Drone* (Minneapolis: University of Minnesota Press, 2018), 3.

19 There are numerous instances of civilian death by drone. Observing the deployment of drone warfare in Yemen, the US office of the Sana'a Center for Strategic Studies (SCSS) in New York has noted that "in the 15 years in which the US has deployed military drones in Yemen, there have been hundreds of civilian deaths, untold suffering endured by the injured and loved ones of the victims. This has

deeply marred the image of the United States in the eyes of Yemenis and enables recruitment for AQAP [Al Qaeda in the Arabian Peninsula]." Citing the Columbia Law School Human Rights Clinic and SCSS findings, the author of this damning report goes on to note that "the US government's figures and estimates are significantly lower [...] than those gathered by independent organizations, including those that use on-the-ground, fact-finding missions to calculate casualty figures." See Waleed Alhariri, "Country Case Study: Yemen," in *The Humanitarian Impact of Drones*, ed. Ray Acheson et al. (New York: Women's International League for Peace and Freedom, 2017).

20 I should observe here that Amin has developed a separate, more allegorical project, under the title of *As Birds Flying* (2016). This short film responds to similar issues through the use of found drone footage (including aerial views of savannas and wetlands, and settlements in Galilea), and alludes to both political corruption and religious radicalism through the use of audio sequences from Adel Emam's 1995 film *Birds of Darkness*. The militaristic connotations, against this backdrop, is further imbued in the nouns used to describe a flock—a muster of storks or a phalanx of storks—of storks and how both terms relate to a gathering of troops.

21 This was certainly the case with an earlier intervention by Amin, when she took the opportunity to subvert the graffiti used in an episode of the American spy-thriller television series, *Homeland*. See Dan Bilefsky and Mona Boshnaq, "Street Artists Infiltrate 'Homeland' with Subversive Graffiti," *New York Times*, October 15, 2015, https://www.nytimes.com/2015/10/16/world/europe/homeland-arabic-graffiti.html.

22 The missile that killed Major General Qasem Soleimani of the Iranian Islamic Revolutionary Guard Corps and commander of the Quds Force, alongside the Iraqi politician and military commander Abu Mahdi al-Muhandis and seven others, at Baghdad International Airport on January 3, 2020, was reportedly launched from an MQ-9 Reaper drone. The MQ-9, also known as Predator B, is referred to by the US Air Force as a remotely piloted vehicle/aircraft. The operation to assassinate Soleimani is believed to have been directed by the CIA from Creech Air Force Base in Nevada. See Russ Read, "World's Most Feared Drone: CIA's MQ-9 Reaper Killed Soleimani," *Washington Examiner*, January 3, 2020, https://www.washingtonexaminer.com/policy/defense-national-security/worlds-most-feared-drone-cias-mq-9-reaper-killed-soleimani.

23 The technologies being developed in relation to non-Western regions and contexts are often also being "tested" for more homegrown use. Peter Thiel, a venture capitalist and Facebook board member, founded Palantir in 2004 and developed its profile working for the Pentagon and the CIA in Afghanistan and Iraq. It has been reported that Palantir has been employing data-mining tools used in the so-called War on Terror to track American citizens. See Peter Waldman, Lizette Chapman, and Jordan Robertson, "Palantir Knows Everything about You," *Bloomberg Businessweek*, April 19, 2018, https://www.bloomberg.com/features/2018-palantir-peter-thiel/. See also Shosana Zuboff, *The Age of Surveillance Capitalism: The Fight for a Human Future at the New Frontier of Power* (London: Profile Books, 2019); and Jocelyn Wills, *Tug of War: Surveillance Capitalism, Military Contracting, and the Rise of the Security State* (Montreal: McGill–Queen's University Press, 2017).

24 The Greek term *skopos*, one of the roots of "scopic," similarly alludes to both someone watching and a target. The term and its meaning are central to Lacanian models of the subject- and object-based "scopic field." For Antoine Bousquet, writing in *The Eye of War: Military Perception from the Telescope to the Drone*, the term "scopic regime" has Cartesian roots in its "reduction of perceptual space to mathematical and homogeneous space" that gives rise—post-Renaissance and within the context of a scientific world-view of the early modern period—to a "rationalized articulation of vision and space." See Bousquet, *Eye of War*, 10.

25 In grammatical terms, a transitive verb describes an action carried from the subject to the object, but it also needs a directly defined object through which to complete its full meaning.

26 I am drawing here on the Latin root of the term "adumbrate"—namely, *umbra* or shadow—and the way in which it describes a series of activities that include giving an outline or form to an object through foreshadowing or casting a shadow upon it.

27 The relationship between drone technologies, gaming, and entertainment, noted earlier in connection to the augmented realities that power the gaming industry and the way in which Hollywood normalizes the wish list of the US military-industrial complex, can be further progressed here if we consider that so-called "instant replay" was introduced in 1963 during an American college football game. Invented by Tony Verna, the first instant replay showed a touchdown, from a different camera angle, moments after it had been broadcast live. The subsequent use of the technology involved gave rise to replays in slow motion from multiple camera angles, freeze-frame shots, frame-by-frame review, variable speed replay, overlaying of graphics, and instant analysis tools. In 2008, it was reported that the US military uses the same video technology the National Football League uses for instant replay to analyze video from drones. See Michael Grotticelli, "Military Uses Instant Replay Technology in Afghanistan," *TV Technology*, July 9, 2010, https://www.tvtechnology.com/miscellaneous/military-uses-instant-replay-technology-in-afghanistan.

28 There are multiple connections to be had between social-media companies such as Google, Facebook, Microsoft, and others, and the US military-industrial complex, none of which should come as a surprise given that the precursor to the internet was Arpanet, a communication system developed in the US in the 1960s as an early warning system for the nuclear age. For a review of Google's involvement in drone technology, see Lee Fang, "Google Hired Gig Economy Workers to Improve Artificial Intelligence in Controversial Drone-Targeting Project," *Intercept*, February 4, 2019, https://theintercept.com/2019/02/04/google-ai-project-maven-figure-eight/. For details of the US government's Project Maven and Google's role in its development, see Lee Fang, "Google Is Quietly Providing AI Technology for Drone Strike Targeting Project," *Intercept*, March 6, 2018, https://theintercept.com/2018/03/06/google-is-quietly-providing-ai-technology-for-drone-strike-targeting-project/. For an overview of Amazon's concerted efforts to enter into the national security market contracts of the United States, see Sharon Weinberger, "The Everything War," *MIT Technology Review* 122, no. 6 (November/December 2019): 26–29. Amazon's cloud-based software program Rekognition is also used for the purpose of facial recognition by a number of US government agencies including the US Immigration and Enforcement agency. More recently, it was announced that Peter Thiel, mentioned above in relation to Palantir, was one of the financial backers of

Clearview AI, a privately owned facial-recognition app that has been deployed, without any public scrutiny as to potential misuse and its future weaponization by authoritarian governments, by over six hundred law enforcement agencies across the US. See Kashmir Hill, "The Secretive Company That Might End Privacy as We Know It," *New York Times*, January 18, 2020, https://www.nytimes.com/2020/01/18/technology/clearview-privacy-facial-recognition.html.

29 Debates about whether drone-based targeted killing programs are indicative of an incipient moral indifference to death, caused by armed conflict in particular, are widespread within military, ethical, and legal fields. See Michael J. Boyle, "The Legal and Ethical Implications of Drone Warfare," *International Journal of Human Rights* 19, no. 2 (2015): 105–26; Anders Henriksen and Jens Ringsmose, "Drone Warfare and Morality in Riskless War," *Global Affairs* 1, no. 3 (2015): 285–91; and Bradley Jay Strawser, "Moral Predators: The Duty to Employ Uninhabited Aerial Vehicles," *Journal of Military Ethics* 9, no. 4 (2010): 342–68.

30 It was recently reported that the US Army is developing a program called the Integrated Visual Augmentation System, which adapts a version of Microsoft's augmented-reality headset—the latter being a self-contained holographic computer—to provide more effective modes of night vision, thermal sensing, and monitoring of vital signs. See Julia Carrie Wong, "'We Won't Be War Profiteers': Microsoft Workers Protest $480m Army Contract," *Guardian*, February 22, 2019, https://www.theguardian.com/technology/2019/feb/22/microsoft-protest-us-army-augmented-reality-headsets.

31 The issues of algorithmic bias in racial profiling and the politics of inequality have been explored in, respectively, Safiya Umoja Noble, *Algorithms of Oppression: How Search Engines Reinforce Racism* (New York: New York University Press, 2018); and Virginia Eubanks, *Automating Inequality: How High-Tech Tools Profile, Police, and Punish the Poor* (London: St. Martin's Press, 2018).

32 See Mbembe, "Necropolitics," 40.

Pages 32–39: First aerial photographs of Palestine, ca. 1900–20: (in order) Olivet Range from 4,500 meters, Jericho Road from 3,000 meters, Bethlehem from 3,000 meters, and Nazareth and environs from 2,500 meters.