# Chapter 2: View from Above

## The Control-View

A view of the Earth as seen from up above flourishes in contemporary science and technology. Yet it can be traced back to the origins of human culture. Such a view has held special importance, for example, in the Egyptian idea of ‘The Eye of Horus’ as well as the Catholic idea of ‘The Omnipresent Eye’. Many authors from antiquity to today have written about such an ‘Eye in the Sky’, including Hesiod, Callimachus, Theocritus, Heliodorus, Diodorus Siculus, Plutarch, Pliny the Elder, and Aulus Gellius. Indeed, as Hubert Damisch noted the metaphor of a god as an all-seeing architect has existed since long before Plato’s description in the *Timaeus*, in which god is described as a lonely being creating the universe.[[1]](#footnote-1)

Further, an aerial view, or viewpoint seen at a high elevation, has existed in some form even before the invention of technologies for flight, although only at the level of predicting such a way of seeing. As shown in archaeological artefacts, this bird’s eye view was already introduced to visual culture in the Neolithic Age.[[2]](#footnote-2) And over six thousand years later, during the Renaissance, it developed further into a mathematically-based means of perspectival construction, which in turn influenced the development of the discipline of cartography.[[3]](#footnote-3) At the time, an aerial or bird’s eye view was of course impossible. Besides perching at the summit of a mountain or atop a building, humans were contained to a pedestrian or street-level point of view. Leonardo Bufalini in *Roma* (1551), Etienne Dupérac in *Nova Urbis Romae Descriptio* (1577), and Antonio Tempesta in *Recent prout hodie iacet almae urbis Romae cum omnibus viis aedificiisque prespectus accuratissime delineatus* (1593), all imagined the city of Rome from above. The images by Bufalini, Dupérac, Tempesta, and others, while not entirely abstracting their point of view as in a high angle oblique, employed a low angle oblique to depict Rome from a perspective much higher than that which was physically possible in their day. The motif was simple: to represent an entire city or large structure all at once.

In order to imagine an objective space, a culture has to have an idea of the absolute or total one. Absolute space consists of those parts of space that are experienced by the viewer as well as those part of space that are non-experienced. Such a space is said to exist a priori, a prerogative of any perception of the given (visible) space in particular. It is a space which Wilhelm Wurzer defines through concepts of a priori perception and ‘transcendental apperception, by which defines a priori perception’.[[4]](#footnote-4) James Elkins claimed the idea of the absolute space did not exist as a concept in Renaissance, which was to re-invent perspective, but emerged latter.[[5]](#footnote-5) Many authors refer to the rise of the absolute space in Baroque illusionist paintings as envisioning something like an aerial view. Certainly, the absolute space of the Baroque period was connected to ideas of absolute power, coinciding with a fully analytical perspectival model, Cartesian dualist philosophy, and the rise of the idea of panoptic control. Martin Heidegger referred to such a view as the rise of modernity itself.[[6]](#footnote-6) It was by the end of the 18th century, he noted, that people began to conceive of the world as such.[[7]](#footnote-7) Although Heidegger made no mention of totality, he described the subjective view of the ‘world picture’ (*Weltbild*) for a given era, an image of what is not only seen but also grasped as the whole. ‘The world does not change from an earlier medieval into a modern one, but rather the fact that the world becomes picture of all is what distinguishes the essence of the modern age’, he specified.[[8]](#footnote-8) Yet this picture is not complete, because it is developed in parallel to the subjectivization of the human.

As with all general theories, the world soon again became fragmented. Relativism arose around 1620 in the Netherlands and reached its peak in German and British Romanticism. When applied to images of the Earth, as Christine Buci-Glucksmann analyzes, relativism predominantly describes the point of view and the angle of view, which later was reformulated into the epistemic perspectivism used in the wider implementation of world explanation with it.[[9]](#footnote-9) An interest in maps was replaced by the one more into intimate genre of the landscape. During Romanticism, the genre of the landscape was the most popular way to represent space, highlighting the position and interpretation of space through the placement of the viewer. Some new geographic systems were introduced, enforcing geocentrism, but also homocentrism and egocentrism.[[10]](#footnote-10) They were consequences of the ‘Copernican turn’, commonly defined as this positioning the subject at the very center of not only epistemology, enforcing ontology based on a mere experience or phenomenology (including consequently, science).[[11]](#footnote-11) With the innovation of flight, however, Baroque idea of absolute space would again be revived.

## Early Flights

Taking images from the air was already a practice in the 18th century with the early tests of hot air balloon flight. In America, Benjamin Franklin was the first to witness the flight of a balloon, he wrote in his notes.[[12]](#footnote-12) In France, the Montgolfier brothers invented the first practical hot air balloon and succeed in lifting themselves up off of the ground in 1783.[[13]](#footnote-13) And two years later, American pioneering balloonist Thomas Scott Baldwin described balloon flight in detail in his *Aeropaidia*.[[14]](#footnote-14) This book, besides describing general phenomena connected to flying, pointed out two visual phenomena that occurred along with the increased elevation of the viewpoint from the Earth’s surface: confusing distortions of measurement due to the curvature of the Earth, and changes to the colors of the Earth as a the result of atmospheric density. The photographic genre of aerial photography, when it fully emerged in the 19th century, had to address both of these visual phenomena and their respective image distortions.[[15]](#footnote-15)

The first aerial record to be made during a flight was taken only in 1857, some twenty years after the invention of photography. Gaspard-Félix Tournachon, known by the mononymous pseudonym Nadar, took this photograph while flying over Paris in his balloon. Unfortunately, the technological constraints of the time, when photography was still at its early stages of development, resulted in several difficult conditions for taking the picture. The exposure time could last up to twenty minutes (when using the wet-plate technique).[[16]](#footnote-16) Besides this slow exposure, chemical instability might also be one of the reasons that Félix Nadar’s earliest photographs have not survived. As Stephen Bann explains, ‘the gas [...] from the balloon reacted with the emulsion of photographic plates, and the result was a blackened image’.[[17]](#footnote-17) The oldest surviving aerial photograph, therefore, in fact dates to three years later. It was recorded by James Wallace Black while flying in a hot air balloon over the city of Boston in the US.[[18]](#footnote-18) Wallace’s photographs were shot in a low oblique view which distorted the space depicted in the image. Further, Wallace merged aerial photographs taken from different locations during his flight, producing a kind of perspectival amalgam. A significant amount of information was lost from the corners of these aerial photographs. This was due to the relative positions of the many different points of view, in relation to the curvature of the Earth’s surface, the curvature of the camera’s lens, as well as the distance between the camera and the subject. Given the long exposure time for these aerial photographs, these factors shortened the depth of field. Consequently, the resulting amalgamated images have faded edges, indefinite border, and vignette shape. Besides these spatial and temporal distortions, the overall sharpness of the image was also low and the exposure uneven, because some parts of the photograph were overexposed and other parts were underlit. Nevertheless, the end result was far more chemically stable than with the first aerial photograph taken by Nadar.

Figure 12: James Wallace Black, View of Boston, 1860 (the work in the public domain)

Figure 13: Gaspard-Félix Tournachon Nadar, Aerial view of Paris, 1868 (the work in the public domain)

|  | LAND  PHOTOGRAPHY | AERIAL PHOTOGRAPHY |
| --- | --- | --- |
| Distance | Opening the view | Closing the view with the surface |
| Planes | Order of planes | Single plane |
| Measure | Composition of elements | Single element |
| Angle | Various | Single or amalgamated with little oscillation |

Table 2: Changes to image elements caused by shifting the point of view from land to air

In aerial photography, depth is fixed on the object. The horizon is that of a high oblique taken with the camera inclined about sixty degrees from the vertical. And the vanishing point is that from a linear perspective, which creates the illusion of a flat surface. To a certain extent, this is similar to how space was interpreted in the 15th century, an absolutistic rhizome seen from the perspective of a singular authority or viewpoint.[[19]](#footnote-19) Since then, however, new techniques of image-making have been developed which bypass the limitations of a human-based point and angle of view, which relies today not upon the integration of multiple viewpoints but rather their computation. In the 19th and 20th centuries, innovation in aerial imaging technologies led to a new kind of totality, the totality of a computational view of the world. And because this was not possible on the basis of any one point or even angle of view to reach it, new technologies have been created in order to compute recorded sections into a whole.

Although Nadar’s earliest aerial photographs have not survived, so that Wallace’s aerial photographs are the are oldest which are today extant, Nadar himself found a unique solution to the problem of perspectival distortion: to employ sequential recording. Therefore, in a way, he produced the first computed total image, and did so solely using analogue photographic material. Such a way of recording, Nadar found, to some extent corrected both the curvature of the Earth as well as the problem of distributed points of view. This photomontage produced a more map-like appearance to the aerial shot. Nadar’s technique was followed by that of Arthur Batut, who went even further, carrying with him into the sky a camera as well as an altimeter in order to measure the rate of exposure for the photographic plate. Batut invented a process of image correction for the raw aerial photograph by making an effective altitude map. With this proto-computational process, Batut’s images would influence the birth of the orthophoto method, leading to maps which are produced from the original aerial photographic source, rather than just measurements of the land from the ground.

With the further development of technologies for flight across the late 19th and early 20th centuries, photography from the air became increasingly accurate. In Germany, Ferdinand von Zeppelin pioneered the first rigid-structure airship between 1874 and 1893. In the succeeding years, the Wright brothers in America continued to experiment with flight, building the world’s first successful airplane, and undertaking the first flight in 1903. Their endeavors led to the accelerated development of a new aerial industry. And the first airplanes were tested by 1906.[[20]](#footnote-20) Thus, historians usually consider military aviation to have already been born by 1880, but it would not really be developed until a short time period twenty-years before World War I. After WWI, photographic technology was also miniaturized, so many planes were supplied with cameras.[[21]](#footnote-21) In such military context, aerial photography took over the role of the map, with each subsequent technological innovation respectively informing use .[[22]](#footnote-22) For example, the stabilization of flights in turn led to a better quality of record and, eventually, to the automation of recording. In this regard, one crucial test was Oscar Messier’s flight with an airborne camera. With the full integration of automated recording, the military also began to use aerial cameras to document the battlefield. And the numbers of such photographs grew rapidly. By 1915, the British army, amidst war with the Germans, shot about 1500 photographs in the field, making The Great War also the first war to encompass an ‘image–coordinated action’.[[23]](#footnote-23) Indeed, the innovation of this technology changed the entire course of WWI, as Peter Sloterdijk claims, because the target was no longer a person, but the landscape.[[24]](#footnote-24) Since WWI and WWII, the military industrial complex has remained the largest investor in the research and development of aerial photography. This funding, in turn, has led to the complete panopticonisation of the land through photographs taken from the sky.

And, unfortunately, these techniques were soon used for the purposes of military intervention within the urban landscape. For example, Lucien Le Saint, who worked for the army, was on the team which documented the war damage. And in his film *Aerial views of Ypres* (1919), he recorded a completely destroyed or flattened city.[[25]](#footnote-25) The power of such new aerial photography came into full force by WWII, when many cities were not only bombed, but this bombing was also simultaneously recorded.[[26]](#footnote-26) Indeed, as Antoine Bousquet points out, ever since WWII we can speak of a ‘martial gaze’ which combines photographic technology with the purposes of military perception, used in order to attack or defend.[[27]](#footnote-27) Apart from such visual phenomena, as Jussi Parikka also observers, when aerial photography is applied in concert with aerial bombardment, the landscape is not only literally flattened, but also represented as being flat.[[28]](#footnote-28)

## Expanding the Game?

Aerial photography would become one of the most important photographic genres of 19th century and would in turn inform the genres of other artistic mediums. Besides Nadar, more and more artists were becoming interested in making photographic records during flight.[[29]](#footnote-29) At the beginning of the 20th century, at the early stage of aerial photography, some famous photographers even joined the air force in their respective countries so that they could have the opportunity to take such pictures. This included American photographer Edward Steichen, a pioneer in aerial intelligence during the WWI. The images recorded by Steichen brought a further aesthetic element to this view from above, an abstraction of territory, elevating not only the sensory perspective but also the social position of the viewer.[[30]](#footnote-30) The effects of such images on the general public, who themselves did not yet have their own experiences of flight, as many if not most of us do today, was significant enough that the famed author and benefactor to the arts Gertrude Stein was herself convinced that the aerial view influenced the rise of abstraction in painting.[[31]](#footnote-31) As Siegfried Kracauer later noted, ‘The ornament resembles aerial photographs of landscapes and cities in that it does not emerge out of the interior of the given conditions, but rather appears above them’.[[32]](#footnote-32) Aerial photographs actually look more like maps, or what Claire Reddleman terms ‘cartographic abstraction.’[[33]](#footnote-33)

Figure 14: Edward Steichen, Aerial view of ruins of Vaux, France, 1918 (the work in the public domain)

In fact, artists were fascinated by modern technologies for flight in particular and aeronautics in general in many artistic and social movements of the early 20th century. To name but a few, Constructivism which originated in Russia and influenced the Bauhaus and De Stijl movements, and Futurism which originated in Italy, were in one way or another centered around the idea of the human surpassing his earthly conditions and limitations to finally overtake the position once reserved for the gods. Suprematists, in particular, were perhaps most fascinated by this ‘new dimension,’ and introduced an aerial-like imaging. In Russia Kazimir Malevich gave a speech praising aerial view aesthetics.[[34]](#footnote-34) In 1916, Vassily Kandinsky painted *the Red Square from Above*, a painting said to be composed from a ‘collapsing perspective,’ as if the artist was standing in the middle of the square.[[35]](#footnote-35)

Further exemplifying the appropriation and integration of the bird’s eye view from aerial photography in other art forms and medias, in Hungary, László Moholy-Nagy, while not taking to the skies himself as did many other artists, used aerially recorded city imagery.[[36]](#footnote-36) At the beginning of his movie *Impressions of the Old Part of Marseille* (1929), Moholy-Nagy displayed a map of the French city of Marseille. In succeeding shots, this map is then cut with a hole in the middle in order to allow a view of the harbor. Seen through the hole, the first shot is an aerial one, followed by shots of street angles. Throughout the film, records from the sky are superimposed onto those at street level, contrasting corrected and purified aerial vision from approximate angular view and land view. Aside changing positions in heights, Moholy-Nagy also shifted details, as for example portraits and generalized views from above, strongly dividing the private vs objective story, but also realistic vs abstract field.[[37]](#footnote-37) He used aerial shots, and the interchange between wide-views and close-ups, to depict different places of the harbor from the seashore to small dirty streets.[[38]](#footnote-38) At certain moments, the film camera surveilled the local population in upper view close-ups from the window. The aerial view here contributed to a modernistic, abstract-geometric layout, especially in places where the camera focused on the construction of building systems, such as bridges and various console type of supports as pillars. This ‘Icarian’ view did not only have an influence on artworks by artists such as Malevich, Kandinsky, and Moholy-Nagy, as Christine Buci-Glucksmann recognized, but also on the work of Marcel Duchamp, who used it to destroying the paradigm of the horizon to arrive at the ‘null point’ or ‘zero forms’.[[39]](#footnote-39)

## Flattening the Ground

The aerial or bird’s eye view, beyond influencing the birth of abstract art, has also provoked changes in the paradigm of vision, which has become increasing schematic, symbolic and, as such, nonhuman. Although we tend to think about the development of unmanned aerial vehicles (or UAVs) in the context of contemporary warfare, the first tests of such flying devices were already done by the time modern artists recognized the importance of the view of the Earth from the sky up above.[[40]](#footnote-40) Image-led weapon and surveillance machines were perfected in the 1970s during the Cold War. Although, before development of the global positioning system (GPS) it was still impossible to send an automated plane. With this invention the interest in using imaging the war led by imaging greatly accelerated.[[41]](#footnote-41) And the initial use of image-lead flying devices would be during the Gulf War (1990-91).

This was the first war that, according to Jean Baudrillard, ‘did not took a place’, but rather brought together separate places within a produced space with its victims as well as its attackers at distant points on the planet.[[42]](#footnote-42) Thus, Paul Virilio defined it as the war in two dimensions.[[43]](#footnote-43) At the time of the Bosnian War (1992-95), the first planes that could operate on autopilot were not yet ready for implementation. The first aerial photographs done using self-flying planes were only during the Kosovo War (1998-99), which was followed immediately by a NATO bombing campaign of Yugoslavia. And the use of unmanned aerial vehicles in war came as a direct consequence of the 9/11 attack on the United States. The so-called ‘targeted killing’ program was ordered by U.S. President Obama’s administration.[[44]](#footnote-44) Targeted assassination by drones were at full force in the Afghanistan War (2001-4). Since then, the countries which are most often bombed remotely include Afghanistan, Pakistan, and Yemen.

Besides passive surveillance, drone technology was autonomously, physically engaging towards the viewed. Or, to paraphrase Virilio, the visual field has become the battlefield.[[45]](#footnote-45) Literally, the targeting of weaponry was integrated with the imaging of photography, such that the eye itself, in essence, become a weapon, in a technologization of the Evil Eye concept.[[46]](#footnote-46) In other words, the gaze of the drone or, as the artist and geographer Trevor Paglen calls them, ‘the meat-eyes,’ is not simply the a gaze which views but also a gaze which destroys.[[47]](#footnote-47) And, as Grégoire Chamayou points out, these image technologies become objects of ‘lethal surveillance’.[[48]](#footnote-48)

Moreover, these machines analyze and compute images autonomously of human agents. As Harun Farocki stated, ‘The missile search-head reads the images. Image processing presents itself’.[[49]](#footnote-49) Farocki further described how ‘“The key to ‘intelligent weapons’ is image processing. Images of the terrain it is to traverse are stored in a rocket. During its flight, it photographs the terrain below and compares the two images, the goal image and the actual image.’[[50]](#footnote-50) Empowered to make complex decisions on their own, and even further equipped with such features and functions as facial recognition, these intelligent weapons have a degree of autonomy on par with robots. Yet, their analytic functions are far from perfect.

The view from a drone is limited, and while the camera may be rotated, it cannot simultaneously provide near and far vantages. Thus, a pilot cannot maintain close and distant views of a subject or subjects at the same time, or comparatively analyze both the context and the detail, while making the final decision about what action to take. If they zoom in, the wider picture is lost. And if they zoom out, the finer detail is lost. This in turn can increase the likelihood of mistaken interpretations about what is shown in an image, such as the circumstances surrounding an event, or the identity of a person of interest. And such mistakes can result in an unwanted fatality.

A pilot in the feature-length documentary film *Unmanned: America’s Drone Wars* (2013), for example, states that she was not sure whether the something which she had killed was a dog or a child. Given this absence or variability of information during a combat situation, some people have been killed not because of their identity, but for their behaviors, which to a drone operator seemed suspicious. This ‘uncertain or undeciding vision’ is even challenged by some artists. Tomas van Houtryve, for example, addressed the ethics involved with distance in war through his photographic series *Blue Sky Days* in 2015.[[51]](#footnote-51) By recording images of gatherings such as weddings, funerals, and groups of people at prayer, such as those which have become habitual targets for foreign air strikes, and would be classified and not made available to the public, only created in the public spaces of the US where foreign air strikes do not occur, Houtryve points to the role of identification in remote perception and its relativism when deprived of the context. Such an aerial, bird’s eye, or eye-in-the-sky view cannot discriminate between the objects, people, or things which are being perceived.

Errors are due mostly to the necessity of representing distance in war as well as the compression and distortion from physical space to image space. For the pilot of a drone, war can seem far away even though no distance is crossed, and no place is experienced. For drone pilots, the world they view on their monitors appears immediately before them, while it is in fact thousands of miles away. Because there may often be an entire ocean between the drone pilot and drone target, there are many possible points in the chain of events in which technological may break down. Physical distance between the body of the person who operates the drone and the person who is the victim of the drone produces a gap between visual space and real space which in turn leads to psychological distance like that between the virtuality of a game and reality of the environment, polluting them, to employ Virilio's expression.[[52]](#footnote-52) Indeed, drone pilots often refer to their work as gaming and compare the experience of running a drone strike to the experience of playing a computer game. And these military officers are often recruited from among video gamers.[[53]](#footnote-53) This collision between wargames and warfare is perhaps best illustrated by the movie *Drone* (2013), in which a pilot also plays games of war, and shifts back and forth from virtual to real war.[[54]](#footnote-54) Because of the game-like experience of such warfare, questions of its ethicalness can be more easily separated, both procedurally and psychologically, to address the drone pilots and military authorities.[[55]](#footnote-55) In *The* *Eye in the Sky* (2015), the screenwriters criticize such ‘disgraceful [behavior] done from the safety of one’s chair’.[[56]](#footnote-56) Situated in a military campus, or a castrum, such as Fort Bragg in North Carolina, these pilots intervene in someone’s life while their own combat experience is abstracted and schematized.

Comparing these different viewpoints, in the *The Eye in the Sky* the director superimposes images from above as recorded by the drone as well as from below as seen by a boy.[[57]](#footnote-57) The first view is aerial, the second grounded. As Branden Hookway writes, the drone pilot’s ‘cockpit is at once a sphere of inhabitation, an ergonomics of use, an assemblage directed to weird control surfaces and the materiality of the air flow, and a threshold between human and machine whose mediation is expanded in trajectory of flight’.[[58]](#footnote-58) The ‘psychology of distance in war’ is, reductively, that the further we are from the victim, the likely it is that we will act harshly.[[59]](#footnote-59) And it is this distance which ‘has influenced a construction of senseless jargon naming killing a “bug splat”’.[[60]](#footnote-60)

Figure 15- Cockpit view (work in CC0 license)

## Counter-surveilling

While military agencies have led the development of aerial photography in a direction of total images useful for control, artists, to whom we owe the invention of the photographic medium itself, have worked toward the abolishment of this very control. Many contemporary artists and artist groups, in a continuation of the investigations first begun by pioneering aerial photographers Félix Nadar and Edward Steichen, raised their voices in protest against this new classified and covert aerial image culture. In order to critique this surveillance, artists have developed own countersurveillance practices­­­­. One such project is the Bureau of Inverse Technology’s *BIT Plane* from 1997.[[61]](#footnote-61) The artist, Natalie Jeremijenko, constructed a small plane which could be used to spy onto Silicon Valley. This twenty-inch plane, which may be seen as a prototype model for the fly-drone, has entered the very production center of the optical control technologies. Similarly, the Civil Counter-Reconnaissance group, led by the artist Marko Peljhan, has reverse-engineered military surveillance drones, and built their own drone system using a vehicle bought on the Internet.[[62]](#footnote-62) In addition to these artworks, there are also projects by System77, Nicolas Schaffer (CYSP), The Surveillance Video Entertainment Network (SVEN), and others that engage in some form of drone counter-surveillance. Some artists construct drones themselves, while others hack or reprogram already existing drones, and use these ‘zombie drones’ for alternative or even opposing purposes.[[63]](#footnote-63)

In parallel to artistic counter-surveillance using actual drones, some artists also map drone positions from land, making visible what is otherwise invisible: the very presence and activity of drones in our societies.[[64]](#footnote-64) Essam Adam Attia has created several works about drones and their use, including *Drone Zones*, *The Drone Campaign*, and *Children of Drones*. In *Drone Zones*, for example, Essam posted signs in the public spaces of New York City which warned of ‘drone activity in progress’, ‘drone strike zones’, and ‘statutes enforced by drone’. [[65]](#footnote-65) Essam, who served for three years in the army as a geospatial analyst before earning his BFA in photography, was even arrested by the NYPD’s Bureau of Counter-Terrorism.

Other artists are also challenging the use of drones and drone-based aerial photography in their artworks. James Bridle in *Drone Shadows* (201-2015) produced a number of chalk drawings of drones on the streets of various cities, reminiscent of the temporary marks used to outline evidence at a crime scene, as a way to remind the public that drones are out there and up. above.[[66]](#footnote-66) In another project, *Dronestagram* (2012-2015), Bridle used images from Google Earth in order to point out locations in which drone strikes were happening.[[67]](#footnote-67) He also added data from the Bureau of Investigative Journalism, a nonprofit new organization based in London, in the image description.[[68]](#footnote-68) On the other hand, an artist Christopher Csíkszentmihályi has reverse-engineered an unmanned roaming vehicle, so as to create what he calls the *Afghan Explorer*, to be deployed in the killing zones of the War on Terror in order to act as a global witness and overcome restrictions on the free press.[[69]](#footnote-69) These artists and others are part of a broader discourse about the panoptic construction of the total image. And their artworks introduce questions about the reliability of these images and the ethics of their use, serving as counter-total image, its logical antipode.

## Ethics on Distances

This new form of warfare is referred to as ‘low-intensity conflict’ because it is asymmetrical, and conducted from only the side of one group or territory. For this reason, the engagement of the United States in Pakistan was often called a ‘cowards’ war’.[[70]](#footnote-70) Noam Chomsky has written on this single sidedness:

Warfare has moved away from man-to-man combat, and is now dominated by deadly missiles, bombing campaigns and by the latest terrible weapons: drones, which are synonymous with terrorism and absolute impunity—they kill without the invading nation having to risk its own soldiers. It is a one-sided war; a video game for one side, the horror of destroyed villages, murdered individuals and mutilated bodies for the other.[[71]](#footnote-71)

Central to the ethical issues which surround drone warfare is the question of whether or not the right to intervene someone else’s life, someone who is not informed about the action, and who may not necessarily be given a fair court trial, the right to face their accuser, or the right of self-defense. That is, the person, persons, or population which is attacked may be deprived of their basic human rights. In this sense, a war conducted by drones appears not all that different from terrorism. The extended presence, in which a drone navigated by a person in one country is acting by the will of the person residing in another, leads to juridical complications. The chain of responsibility is broken. Pilot and commander are not necessarily in the same place. And how can a drone be held accountable for the actions of someone who is playing a game in a faraway land? New vision-killing technologies, which manipulate the perceptual distance between an armed force and their target, also diminish the physical distances which they represent so that those distances can be better navigated and controlled. Much like how cultures down through history have imagined their gods to view the world, such technologies present the Earth both with a flat surface and as immediately present.[[72]](#footnote-72)

1. Hubert Damisch, *Noah’s Ark: Essays on Architecture*, Cambridge, MA: MIT Press, 2016. [↑](#footnote-ref-1)
2. As for example in the image which is an aerial view of the city of Çatalhöyük in Turkey, 6200 BC. See: Stephanie Meece, ‘A Bird’s Eye View - of a Leopard’s Spots: The Çatalhöyük “Map” and the Development of Cartographic Representation in Prehistory’, The British Institute of Archaeology at Ankara, 2006. [↑](#footnote-ref-2)
3. Michael Bury, ‘The Meaning of Roman Maps: Etienne Duperac and Antonio Tempesta’, in *Seeing from Above: The Aerial View in Visual Culture*, London: IB Tauris, 2013, 26-46. [↑](#footnote-ref-3)
4. Wilhelm S. Wurzer, *Panorama,* London and New York: Continuum, 2002. [↑](#footnote-ref-4)
5. James Elkins, *The Poetics of Perspective*, Ithaca and New York, Cornell University Press, 2018 (1994). [↑](#footnote-ref-5)
6. Martin Heidegger, ‘The Age of the World Picture’, A.I. Tauber (ed) *Science and the Quest for Reality*, London: Palgrave McMillan, 1997, 70-88. [↑](#footnote-ref-6)
7. Heidegger, ‘The Age of the World Picture’. [↑](#footnote-ref-7)
8. Heidegger, ‘The Age of the World Picture’, 84. [↑](#footnote-ref-8)
9. Contrasting to the space of perspective, described by Alberti, the one of Baroque ecstasy found by Andrea Pozzo, describes a total place. [↑](#footnote-ref-9)
10. Cosmogony defines the system of geocentric universe, cosmography, studying the planet, chorography (systematic geographic covering of the regions), defining landmaps, but also – ‘geosophy’ being the philosophical system of beliefs related to the earth, represented by John K. Wright. Besides Wright, Alexander Von Humboldt was writing in both cosmography, egocentricity and homocentric universe. [↑](#footnote-ref-10)
11. Also observation by Mitchell. See: W.J.T. Mitchell, *Landscape and Power,* Chicago: University of Chicago Press, 2002. Thus, Edmund Husserl sees difference between pre-Copernican and post-Copernican world. Edmund Husserl, *Foundational Investigations of the Phenomenological Origin of the Spatiality of Nature*, Edmund Husserl Shorter Works, Notre Dame, Ind.: University of Notre Dame Press and Brighton, Sussex: Harvester Press, 1981. [↑](#footnote-ref-11)
12. Abbott Lawrence Rotch, ‘Benjamin Franklin and the First Balloons’, *American Antiquarian Society*. April, 1907, 259-174, [↑](#footnote-ref-12)
13. Martin van Creveld, *The Age of Airpower*, New York, Public Affairs, 2011. [↑](#footnote-ref-13)
14. ‘Aeropaidia: containing the narrative of a balloon excursion from Chester, the eighth of September, 1785, taken from minutes made during the voyage: hints on the improvement of balloons to which is subjoined mensuration of heights by the barometer, made plain; with extensive tables. The whole serving as an introduction to aerial navigation.’ ‘Aeropaidia’, https://archive.org/details/Airopaidia00Bald. It is important to distinguish the balloonist Thomas Baldwin from the inventor of the same name. [↑](#footnote-ref-14)
15. Today, calibrations are used when taking an aerial and satellite photograph of a large-scale settlement. For example, with *Terrestrial Test Patterns Used for Aerial Imaging* from 2013, a huge calibration target was built on the ground which an unmanned camera could detect from a large distance into order to focus in on various object and thereby sharpen the image. [↑](#footnote-ref-15)
16. Not interested studio photography, Nadar invested most of his energy in aerial photography. See: Félix Nadar, *When I was A Photographer,*trans. Eduardo Cadava and Liana Theodoratou, Cambridge, MA: The MIT Press, 2015. Nadar’s interests in aerial technologies and archaeology merged in contemporary discussions on post-digital and post-human photography. [↑](#footnote-ref-16)
17. Stephen Bann, ‘Aerial View’, in Dorrian & Frederic Poussin, *Seeing from Above*, 86 [↑](#footnote-ref-17)
18. James Wallace, 1860. [↑](#footnote-ref-18)
19. For more on the amputation of the vanishing point, see Denis Cosgrove and William L Fox, *Photography and Flight*, London: Reaktion Books, 2010. [↑](#footnote-ref-19)
20. In 1885 in France and, notably, in 1900-1914 in the UK. [↑](#footnote-ref-20)
21. And a revolution in photographic technology came with the portable Leica camera. [↑](#footnote-ref-21)
22. Antoine Bousquet, *Eyes of War: Military Perception from the Telescope to the Drone,* Minneapolis: University of Minnesota Press, 2018, [↑](#footnote-ref-22)
23. See: Hillel Schwartz, *Culture of the Copy*, New York: Zone Books, 1996. [↑](#footnote-ref-23)
24. Peter Sloterdijk, *Terror from the Air,* Los Angeles: Semiotext(e), 2009. [↑](#footnote-ref-24)
25. Lucein le Saint, ‘Aerial Views of Ypres’, YouTube, 1919, https://www.youtube.com/watch?v=8IslTVwW7nY. [↑](#footnote-ref-25)
26. Leica’s Russian copy Zorgi and Fedj123 served the same purpose. Based on a camera found when the German plane crashed on Swedish border, company Hasselblads Fotografiska AB developed a camera that was commissioned by Swedish air forces to counter fight German Leica. [↑](#footnote-ref-26)
27. Sloterdijk, *Terror from the Air*. [↑](#footnote-ref-27)
28. Jussi Parikka, *A Geology of Media,* Minneapolis: University of Minnesota Press, 2015. [↑](#footnote-ref-28)
29. Marc Dorrian and Frederic Poussin (eds) *Seeing from Above: The Aerial View in Visual Culture*, London: I.B. Tauris, 2013. [↑](#footnote-ref-29)
30. Few artists also participated in the WWII. One of the most intriguing acts of the art-world was that Joseph Beuys a pilot during the WWII and has survived a crash of the plane in Tatar country where was rescued by shamans who had rubbed him with fat, wrapped him in blankets, both he later used as parts of his art installations. Still, later found letters witness the event hasn’t took the place. See: http://www.spiegel.de/international/germany/new-letter-debunks-myths-about-german-artist-joseph-beuys-a-910642.html. [↑](#footnote-ref-30)
31. Allan Sekula, ‘The Instrumental Image: Steichen At War’, *Artforum* 14.4 (December 1975): 26-35. [↑](#footnote-ref-31)
32. Siegfried Kracauer, *The Mass Ornament: Weimar Essays*, trans. Thomas Y. Levin, Cambridge, MA: Harvard University Press, 1995, 77. [↑](#footnote-ref-32)
33. Reddleman, *Cartographic Abstraction in Contemporary Art*. [↑](#footnote-ref-33)
34. Christina Lodder, ‘Malevich, Suprematism and Aerial Photography, *History of Photography* 28.1 (2004): 25-40. [↑](#footnote-ref-34)
35. Among other reasons, Christina Lodder, finds reasons also in the relationship of the Russian spiritual relationship to the icon and aerial dematerialization as both, physically or spiritually, privileged views from above. Lodder, in Dorrian and Poussin, *View from Above.* [↑](#footnote-ref-35)
36. Laszlo Moholy Nagy, *The New Vision: From Material to Architecture*, New York: Brewer, Warren and Putnam, 1932. [↑](#footnote-ref-36)
37. László Moholy-Nagy, ‘Impressions of the Old Part of Marseille’, *YouTube*,https://www.youtube.com/watch?v=-gzEKwuh3ok. [↑](#footnote-ref-37)
38. See: https://www.youtube.com/watch?v=FhrMGj73-eg. Apparently, this scenario was used by Leander Kruizinga, Vincent Bonefaas, and Daniël Oliveira Prinsand to make an animation movie in 2002. See: https://www.youtube.com/watch?v=hfQiMXKfZCo. [↑](#footnote-ref-38)
39. See Duchamp’s *Analytical Chart No. 16* (1927) in which he directly refers to Suprematism as an idea of flying. Ten out of seven images represent flight. See: Christina Lodder, ‘Transfiguring reality: Suprematism and the Aerial View’. See also: Kazimir Malevich, *Non-Objective World* (1927). Art has certainly got used to this view quite early. Modernists, Kazimir Malevich and Vasili Kandinsky, among others, have been fascinated with the abstract insight of the aerial view. Malevich directly referred to the importance of the aerial view in his lecture in Warsaw, 1927. His opera *Victory over the Sun* (1913) directly refers to aerial power. Four of thirty-nine works at the *0,10 The Last Futurist Show* (1915) referred to the fourth dimension, she concluded, while *Analytical Chart No 16* is referring to Suprematism as directly connected to flight and flying, compared to both Futurism and Suprematism. [↑](#footnote-ref-39)
40. By 1939, the USA constructed the first control plane for remote actions, but it was not fully functional. [↑](#footnote-ref-40)
41. Leading to a SR-71 bomber. [↑](#footnote-ref-41)
42. Jean Baudrillard, *The Gulf War Did Not Take Place*, Sidney: Power Publications, 2012. [↑](#footnote-ref-42)
43. Virilio, *The Lost Dimension*. [↑](#footnote-ref-43)
44. # It was, however, operated by the United States Air Force, as journalists such as Chris Wood note. See: Chris Wood; *Sudden Justice: America's Secret Drone Wars* *(Terrorism and Global Justice)*, Oxford: Oxford University Press, 2015.

    [↑](#footnote-ref-44)
45. Paul Virilio, *Pure War*, New York: Semiotext(e), 1998. [↑](#footnote-ref-45)
46. All of these concepts serve to demonstrate the ways in which the eye of today’s drone, missile, and other intelligent weapons is not just that of a passive observer, but one which actively interferes with chain of causality in reality. Such a concept of vision is already present in the negative mythological concept of the ‘Evil Eye’, an autonomous and powerful all-observing eye, capable of intervening into reality affairs of what it observes. Similarly to the Evil Eye, the machine eye has a performance capacity. It changes the course of events according to the pre-programmed instructions, directions, or coding of its operator and designer as well as their political context or instigation. [↑](#footnote-ref-46)
47. Trevor Paglen, ‘Operational Images’, *E-flux* 59 (November, 2014), https://www.e-flux.com/journal/59/61130/operational-images/. [↑](#footnote-ref-47)
48. Gregoire Chamayou, *A Theory of the Drone,* trans. Janet Lloyd, New York: The New Press, 2015. [↑](#footnote-ref-48)
49. See: Martin Blumenthal-Barby, ‘“Cinematography of Devices”: Harun Farocki's Eye/machine’, *German Studies Review* 38.2 (2015): 332. [↑](#footnote-ref-49)
50. For more on the work of Farocki, see: Thomas Elsaesser, ‘The Future of “Art” and “Work” in the Age of Vision Machines: Harun Farocki’, Randall Halle (ed) *After the Avant-garde: Contemporary German and Austrian Experimental Film,* Rochester: Camden House, 2006. [↑](#footnote-ref-50)
51. See Tomas Van Houtryve’s series of pictures: http://www.worldpressphoto.org/collection/photo/2015/contemporary-issues/tomas-van-houtryve. This series was awardded the second prize at *World Press Photo* *2015.* [↑](#footnote-ref-51)
52. Virilio and Lotringer, *Pure War*. [↑](#footnote-ref-52)
53. A number of recent movies, such as *The Eye in the Sky* (2015) as well as the earlier *Drones* (2013), address the chain of command which, although a canonical plotline for the filmic war genre, here deals particularly with the civilian casualties which may be incurred in parallel to drone raids. ‘By the time this arrives to TV there won’t be twelve, there won’t be babies’ – a pilot of the pilot – bomb comments in Drones. [↑](#footnote-ref-53)
54. *Drone* (dir. Daniel Jewel, 2013). [↑](#footnote-ref-54)
55. See for example the analysis by George Monbiot, ‘Deadly Drones: Cowards War’, *The Guardian*, 30 January 2012, https://www.theguardian.com/commentisfree/2012/jan/30/deadly-drones-us-cowards-war. [↑](#footnote-ref-55)
56. In another dialogue in *The Eye in the Sky*, the Prime Minister of the United Kingdom says ‘Legally we don’t have a problem’, while an advisor in war room in London asks: ‘Has there ever been a British-led drone attack in a friendly country that is not at war?’. [↑](#footnote-ref-56)
57. But, according to other confession of some pilots from the documentary, they can read up even the car’s registration label while others they can only see the silhouette. As we do not know how the drone’s view look like, there can only be an imagination of that. Comparing how the ‘cockpit’ of the real drone and the same instrument in the movie look like, differences are visible. Both the real and imaginary drone, from documentary *Rise of Drones* (2013) and fiction movie *Eagle Eye* (2008) show the low image resolution, still – the abstract data presented is quite different. Whereas the real document provides only longitudes and latitudes, as well as the zooming distances, the cockpit in the movie buffers sound and shows different sound controls, as; volume, pitch etc… Still, as most of drones are having propellers, it is quite unimaginable how it would record sounds or other machine sounds. [↑](#footnote-ref-57)
58. Branden Hookway, *Interface*, Cambridge, MA: MIT Press, 2014, 6. [↑](#footnote-ref-58)
59. Psychological Distance Psychology is an important factor when addressing the effect of distance in war. See for example: Paul Joseph (ed) *SAGE* *Encyclopedia of War: Social Science Perspective*, Thousand Oaks, SAGE, 2016. [↑](#footnote-ref-59)
60. See the #NotABugSplat-project, which is a collaboration of Pakistani, American and French artists using large scale printed posters which can be visible clearly from satellite. See more at: https://notabugsplat.com. [↑](#footnote-ref-60)
61. Bureau of Inverse Technology and Natalie Jeremijenko, ‘Bit Plane’, 1997, https://anthology.rhizome.org/bit-plane https://dronecenter.bard.edu/interview-natalie-jeremijenko/. [↑](#footnote-ref-61)
62. One of the interesting pieces, here, also is by the collective Apsolutno, who have exhibited, on *World Information.org* the audio piece derived from the black box of the NATO plane bombing Serbia, which they bought on the free market. [↑](#footnote-ref-62)
63. One such a case is a zombie drone or a drone which is hijacked by Skyjack or similar program, to be overtaken and lead by another agent, who can then commit crimes being uncaught. See: ‘Hacking Drone Security’, http://hub.jhu.edu/2016/06/08/hacking-drones-security-flaws/. [↑](#footnote-ref-63)
64. In addition to media artists, military agencies, such as those in Iran, have also hacked or reprogrammed existing drones. [↑](#footnote-ref-64)
65. He has also produced posters on the anniversary of the Constitution and Occupy Wall Street, warning that NYPD drone strikes are against civilians. [↑](#footnote-ref-65)
66. *Drone shadows* were produced in London, 2012 (produced with Einar Sneve Martinussen), Istanbul, 2012, Brighton, 2013, New York, 2013, Brisbane, 2013, Brixton, 2013, London, 2014, Berlin, 2015, Karlsruche, 2015 [↑](#footnote-ref-66)
67. Trevor Paglen, *Dronestagram*, http://booktwo.org/notebook/dronestagram-drones-eye-view/. [↑](#footnote-ref-67)
68. Dronestagram, as opposite to Dronestagram, was used for sharing the most beautiful images made by drones, see: http://www.dronestagr.am/. [↑](#footnote-ref-68)
69. Christopher Csíkszentmíhalyi, *Afghan Explorer*, 2001. See: http://www.fondation-langlois.org/html/e/page.php?NumPage=365. [↑](#footnote-ref-69)
70. Stephen Graham, *Cities Under Siege: The New Military Urbanism*, London: Verso, 2011, xv. [↑](#footnote-ref-70)
71. Noam Chomsky, *On Western Terrorism: From Hiroshima to Drone Warfare*, London: Pluto Press, 2013. [↑](#footnote-ref-71)
72. Such a view can also be political, because the ‘The hegemonic sight convention of visuality is an empowered but unstable, free-falling, and floating bird’s-eye view that mirrors the present moment’s ubiquitous condition of groundlessness’. Emmelhainz, ‘Images do not Show’, 137. [↑](#footnote-ref-72)