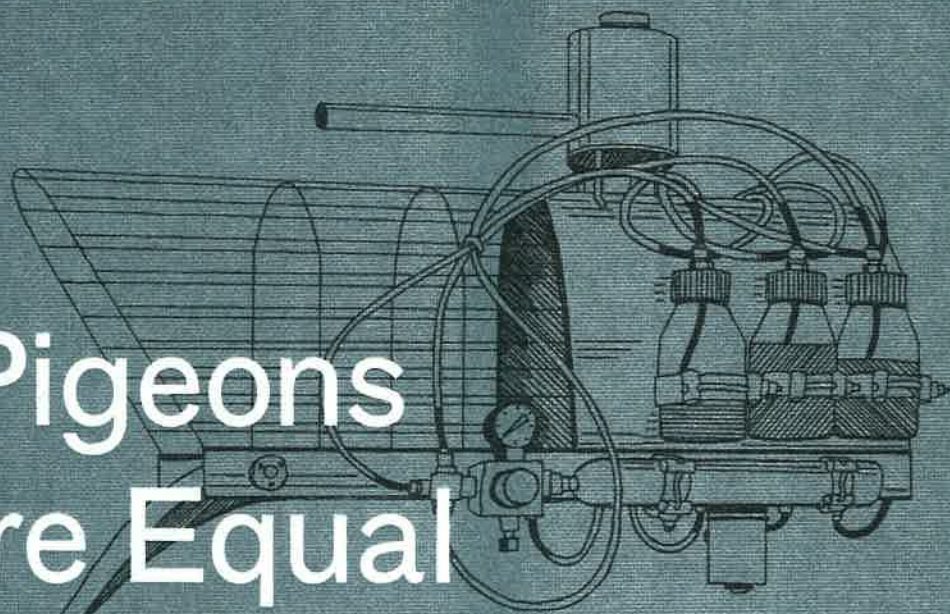


# Some Pigeons Are More Equal Than Others



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## Experiments in Decentered Subjectivity

A drone, in the traditional sense of the word, is “one who avoids work at the expense of others.” The term derives from the Old English root of *dran* or *dron* used for male honeybees, whose primary role in life is to mate. But it is always unclear, when it comes to drones, who works on behalf of whom. Soon after WWII, the word started acquiring a new meaning. Airplanes controlled “by means of electro-magnetic waves” were referred to as drones.<sup>1</sup>

Ever since electromagnetic waves were discovered in the late nineteenth century, they were widely used for communication purposes. Scientists then understood “communication” as a process that could produce tangible effects at a distance, such as those produced by a military order or the detonation of an explosion.<sup>2</sup> Weapons were communication devices. “The cannon was the first of the modern space-annihilating devices by means of which man was enabled to express himself at a distance,” explained the historian of technology Lewis Mumford in 1934.<sup>3</sup> In the post-WWII period Norbert Wiener, founder of cybernetics, expanded this notion of communication to one that included control. Control was—in essence—an act of communication. “When I control the actions of another person,” he explained, “I communicate a message to him, and although this message is in the imperative mood, the technique of communication does not differ from that of a message of fact.”<sup>4</sup>

Remote-controlled airplane-drones had particular benefits. Not only could they go where no one else ventured (inside an “atomic cloud,” for example), they could also deliver hefty payloads no one else wanted to deliver. “The mother planes, following at a distance of 50 miles, could have guided them to their targets and exploded the atomic charge by radio,” explained the Cleveland *Plain Dealer* on August 20, 1946, a few days after the one-year anniversary of the bombings of Hiroshima and Nagasaki. These new drones could do a lot of work. They could even see. “It sees,” explained the author, describing them in utter amazement. But they did not do everything on their own. They delegated an essential part of their work to someone else: “everything it sees is projected by radio on a screen in a mother plane or on the ground.”<sup>5</sup> Their ability to see depended on outsourcing the job. For “it” to see, someone else somewhere else had to look at the screen.

1  
*Time*, November 19, 1945, 52/2. Also *Life*, July 1, 1946, 41 and *New York Times*, June 30, 1946, L3/4.

2  
Jimena Canales, “Einstein’s Discourse Networks,” *Zeitschrift für Medien- und Kulturforschung* 5 1 (2014): 11–39.

3  
Lewis Mumford, *Technics and Civilization* (New York: Harcourt, Brace & Company, Inc., 1934), 89.

4  
“In giving the definition of Cybernetics in the original book, I classed communication and control together. Why did I do this? When I communicate with another person, I impart a message to him, and when he communicates back with me he returns a related message which contains information primarily accessible to him and not to me. When I control the actions of another person, I communicate a message to him, and although this message is in the imperative mood, the technique of communication does not differ from that of a message of fact. Furthermore, if my control is to be effective I must take cognizance of any messages from him which may indicate that the order is understood and has been obeyed.” Norbert Wiener, “Cybernetics in History,” in *The Human Use of Human Beings: Cybernetics and Society* (London: Free Association Books, 1989), 16.

5  
B’ham, *News*, June 25, 1946, 2/2.

We want to see like a drone. The desire to see through other eyes has been one of the most persistent desires of modern times. In “a world divided into the objective and the subjective [...] understanding another mind could only mean seeing with another’s eye or smelling with another’s nose or hearing” with another’s ear, explained the historian of science Lorraine Daston.<sup>6</sup>

Descartes tried to see through the eye of a cow. After taking one from a cadaver, he placed it in the hole of a camera obscura to analyze how vision worked. Galileo was more ambitious. He advertised the merits of the telescope as a means to transcend what could be “seen with the eyes of animals and the uneducated mob.”<sup>7</sup> What would an angel see? John Locke claimed that new instruments that expanded the senses brought one closer to the perspectives he admired the most, that of angels. The differences and similarities between animal, human, and divine perceptual abilities became a frequent topic of discussion from the time of the scientific revolution to today.<sup>8</sup>

Others stooped down to the level of insects, trying to peer through their minuscule and multifaceted eyes. The scientist Johannes Müller started working systematically on insect vision in *Zur vergleichenden Physiologie des Gesichtssinnes des Menschen und der Thiere* (Comparative Physiology of Vision in Man and Animals, originally 1826). The physiologist Sigmund Exner grew so curious about what insects saw that he gazed into the eyes of a firefly and took a photograph of the image reflected on its retina.<sup>9</sup> Exner followed these investigations with inquiries into the perception of color not only by different individuals, but also by different species. Poets and bees, he concluded, were attracted to the same colors: they both adored red. When the biologist Karl Firsch analyzed Exner’s through-the-eyes-of-a-firefly photograph decades later (1927), he still clearly recognized “the shape of the window,” “the window frame,” and even a “church tower farther in the distance.”<sup>10</sup> One could even make out the distinct outline of the letter “R” written on the window. What biologists saw through this particular firefly’s eyes was not too different from what they saw through their own eyes. But what possible meaning could an alphabetical symbol and house of worship have for this insect? [1]

But let us return to our original topic: the drone, that is, the male honeybee. What does it see? With *On the Senses of Insects* (1908) the psychiatrist and insect researcher August Forel sought to answer this very question. What about infants and young children? A few decades later the psychologist and intelligence researcher Jean Piaget wrote “Learning to See Through Another’s Eyes” (1928), considering the ability to understand and adopt different perspectives as one of the most important steps in the development of healthy, smart individuals. He concluded that “formal thought” was only possible by “placing oneself at every point of view and abandoning one’s own.”<sup>11</sup>

In the 1930s the ambition to see like other beings and adopt other perspectives only increased. The biologist Jakob von Uexküll placed himself in the position of children, flies, mollusks, and snails in *Streifzüge durch die Umwelten von Tieren und Menschen* (A Foray into the Worlds of Animals and Humans, originally 1934), obtaining precise results.<sup>12</sup> Uexküll concluded that different creatures perceived both space and time in radically different ways. What was slow to us, was fast for a snail. While humans perceived continuous movement if separate impressions passed before our eyes at speeds above 1/18<sup>th</sup> of a second, experiments with fighting (Betta) fish, in which the animal’s instinct to fight itself when confronted with its own image was tested, showed that fighting fish only recognized their enemy when displayed at speeds higher than thirty times per second. If our experience of the world was species-dependent which of

6 Lorraine Daston, “Intelligences: Angelic, Animal, Human,” in *Thinking with Animals: New Perspectives on Anthropomorphism*, ed. Lorraine Daston and Gregg Mitman (Chicago: University of Chicago Press, 2005), 53.

7 Galileo, “Letter to the Grand Duchess Christina,” (1615).

8 Daston, “Intelligences: Angelic, Animal, Human.”

9 Sigmund Exner, *Die Physiologie der facettierten Augen von Krebsen und Insekten* (Leipzig, Vienna: Franz Deuticke, 1891).

10 Cited in Deborah R. Coen, “A Lens of Many Facets: Science through a Family’s Eyes,” *Isis* 97 (2006).

11 Jean Piaget and Marjorie Gabain, *Judgment and Reasoning in the Child*, International Library of Psychology, Philosophy, and Scientific Method (London, New York: K. Paul, Trench, Trubner; Harcourt, Brace, 1928).

12 The philosopher Giorgio Agamben has recently recognized Jakob von Uexküll’s work as representative of a “high point of modern anti-humanism.” Giorgio Agamben, “Tick” (2002), in *The Open* (Stanford: Stanford California Press, 2004).



[1] Sigmund Exner, *Die Physiologie der Facettirten Augen von Krebsen und Insecten* (Leipzig: Franz Deuticke, 1891), opposite title page.



[2] Lithograph by Honoré Daumier, *Le Boulevard* (May 25, 1863): pl. 367.

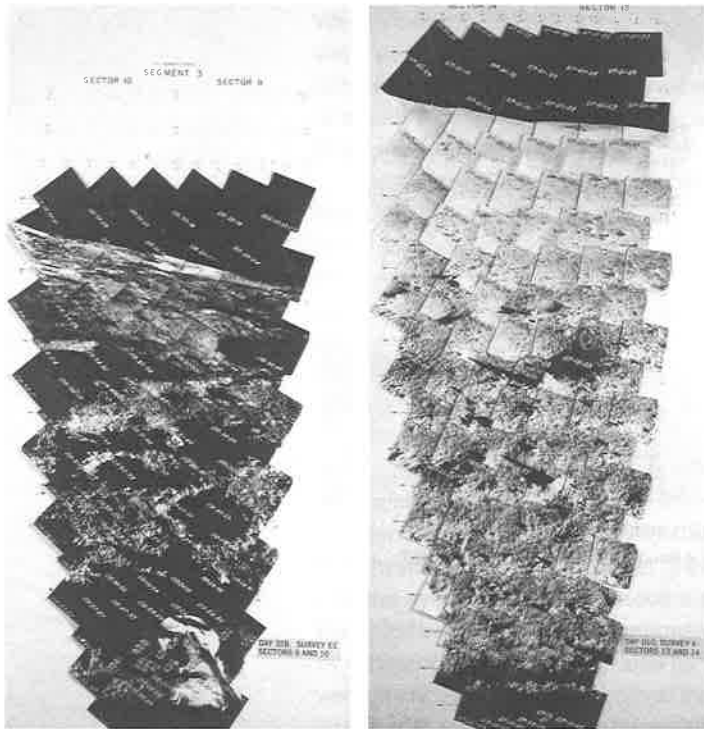
them corresponded to “objective” reality—if any? Uexküll could only get to the *Umwelt* (objective reality) by differentiating it from each and every *Umwelt* (local environment) as perceived by a certain species. As research advanced, the task of finding a species-independent notion of the universe seemed ever more daunting.

## Animal and machine vision

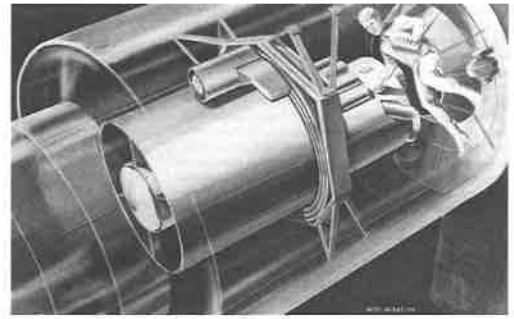
Was animal vision similar to machine vision? What about the drone that projected on a screen “everything it sees.” Was its vision similar to those of its living namesake, those hardworking queen-worshipping infertile male honeybees? In the twentieth century a wide variety of seeing surrogates—either live or mechanical—were analyzed by scientists, artists, and amateurs who sought to perceive the world from the most varied of perspectives. In the 1860s, the famous photographer Felix Nadar lifted himself in a balloon to photograph from its heights. [2]

Soon thereafter aerial photographers became interested not only in what lay beneath them, but their research (at first done with balloons and kites) started to intersect with astronomical concerns as they reached the upper-level atmosphere and studied its properties. Solar spectroscopy and upper-atmosphere research were given “a powerful shot in the arm” when cameras were mounted on the V-2 rockets captured in Germany.<sup>13</sup> In one of the first successful trails, scientists placed photographic plates (spectrographs) on an armored canister in the tailfin of a rocket so that the images would survive after the rocket itself was made to explode on its return. Cameras soon reached into outer space.

13  
Jon Darius, *Beyond Vision: One Hundred Historic Scientific Photographs* (Oxford: Oxford University Press, 1984), 88. For a history of V-2 rocketry see Dennis Piskiewicz, *Wernher Von Braun: The Man Who Sold the Moon* (Westport, Conn.: Praeger, 1998).



[3] Image 222 NASA, Sonde Lunaire Surveyor/Collection Noelle C. Giddings and Norman Brosterman, Jour 328, Levé EE, Secteurs 9 Et 10 1966-1968. From Clair, Jean. *Cosmos: Du Romantisme à l'avant-garde* (Québec: Musée des beaux-arts de Montréal, 1999), 158.



[4] Loading and unloading film canisters in the design of a space telescope of 1969. From Robert W. Smith, *The Space Telescope: A Study of NASA, Science, Technology, and Politics* (Cambridge: Cambridge University Press, 1993), 106.



[5] Neil Armstrong (Buzz Aldrin) on the Moon (1969)/Stephen White Collection II, Los Angeles. Reproduced in Andreas Blühm, *Der Mond* (Köln: Wallraf-Richartz-Museum & Fondation Corboud, 2009), 234.



[6] Photo of a television screen showing the moon landing live in 1969. Author unknown. From The Stephen White Collection II, Los Angeles. Andreas Blühm, *Der Mond* (Köln: Wallraf-Richartz-Museum & Fondation Corboud, 2009), 68.



[7] The first radio image received from the space telescope. From Robert W. Smith, *The Space Telescope: A Study of NASA, Science, Technology, and Politics* (Cambridge: Cambridge University Press, 1993), 403.

In the span of a century, cameras rose from a few hundred feet above the Earth's surface (carried on hot-air balloons) to approximately 590 km (when placed in some of the first camera-satellites to orbit the earth). Photography was integral to space exploration. Space telescopes from IRAS to Hubble were more like a *camera* than like a regular telescope, with no place for an observer to sit at the ocular. There was no point building a space shuttle or surveyor without a camera.<sup>14</sup> [3]

Research into sending and receiving images across large distances was driven in part by our desire to see from as many positions, heights, and perspectives as possible. For decades, the challenge of sending space images back to Earth wirelessly was so complicated that designers preferred to design a system where astronauts would periodically go fetch and replace film canisters. They also planned ways in which the film inside camera space-rockets could be safely returned to Earth and somehow retrieved. [4]

Skylab Lunar Orbiter was one of the last stations to use photographic film. Recording the landing on the moon was as important as the landing itself. But photography was not enough for this particular mission. The moon landing had to be *televised*. [5] [6]

Key innovations in digital television technologies were driven by space exploration research. In 1979 astronomers mounted selenium-sulphur vidicon cameras on Voyager 1 and 2. Solely from these two cameras, the number of images transmitted back to Earth was over 35,000, taken from a distance of 2–3 km. On May 20, 1990 astronomers celebrated the “first light” event sent back to Earth from the Hubble Space Telescope—it was the ultimate sign that it worked, albeit imperfectly. [7]

## Inhuman machines and decentered subjectivity

Do drones perceive the world in a manner analogous to how humans or other living beings perceive it? Do they see? Do *they* kill? Or do we have ultimate responsibility for their actions? In *What is Philosophy?*, Félix Guattari and Gilles Deleuze argued that recording devices had led us to believe in the existence of “sense-data without sensation.” But this particular “sense-data without sensation,” argued Deleuze and Guattari, was always “waiting for a real observer to come and see.” Recording instruments, they argued, only functioned because they “presupposed” an “ideal partial observer.”<sup>15</sup> But they also only worked because they delegated their work. To understand how recording instruments work in the first place, let us figure out who is working for whom.

Lay down comfortably on your couch and think about how the world would look without humans. Is the idea that the “world” can exist without us connected to the proliferation of unmanned recording drones? The psychoanalyst Jacques Lacan considered a curious thought experiment. What would happen if the world was exclusively perceived by automatic machines? Lacan imagined an apocalyptic scenario devoid of humans where the world was seen only by cameras. These machines recorded the world without us for “a few centuries.” In a world where “every living being has disappeared, the camera can nonetheless record the image [...] in complete solitude.” Lacan described how “we can with no problem at all imagine” devices “complex enough to develop their films themselves, pack them into tiny capsules, and deposit them in a refrigerator.”<sup>16</sup> But what would this record be about? Lacan asked his readers to consider a camera taking a picture of a mountain and of a lake with a reflection of the mountain.

14  
Surveyor I. Mariner (mars) was one of the first successful cameras in space.

15  
Gilles Deleuze and Félix Guattari, *What is Philosophy?* (1991; Chicago: Columbia University Press, 1994), 131.

16  
Jacques Lacan, “A Materialist Definition of the Phenomenon of Consciousness,” in *The Seminar of Jacques Lacan. Book II: The Ego in Freud's Theory and in the Technique of Psychoanalysis 1954–1955* (London: Cambridge University Press, 1988), 46–47.

Now continue with your thought experiment, but have humans suddenly return to Earth. "What is certain is that—as soon as they saw on the film the image of the mountain, they would also see its reflection in the lake," explained Lacan. Only then would the lake appear and function as well as a recording device that captured the reflection of the mountain.

The example of a mountain reflected on a lake only illustrated what happened when any other scene was admired or recorded. After all, objects become visible only by bouncing reflections off each other. Lacan's point was that the act of viewing the recorded film—even centuries later—was essential for the image (of the mountain recorded by lake) to appear inside the film. And thus it was only *at that moment* that the world emerged as an *image*.

Lacan took his thought experiment further: cameras could be programmed to create explosions all by themselves the moment certain conditions were met. A photocell could be used as an automatically firing trigger: "We can take things further. If the machine were more complicated, a photo-cell focused on the image in the lake could cause an explosion to take place somehow." This destructive machine would act automatically. Consider it causing an explosion. Who is responsible? As with the mechanically recorded "image of the mountain in the lake," these apparently automatic "explosions" already involve someone else in their work.

Recording devices, constructed exclusively with mechanical parts, work only when we presuppose a human observer existing somewhere sometime, even if only in the distant future. They work because we have certain ingrained presuppositions of what an "ideal observer" is. We can say that they are machines that are partly human. Analogously, when we consider how military drones operate, we need to make certain presuppositions of what an "ideal killer" is. We can thus consider them as machines that are partly inhuman.

From Descartes's automata to Donna Haraway's cyborgs, we have been thinking about the relation between human and machines. It is now time to think about inhuman-machine relations.