Julia M. Hildebrand, *Aerial Play: Drone Medium, Mobility, Communication, and Culture*. Palgrave Macmillan, 2021, pp. 207.

Thomas Mantzaris
(Vrije Universiteit Brussel, Belgium)

The increasing presence of drones in aerial space has generated polarizing views on their use. The medium's astounding capacity for photographic imagery and videographic content is often displaced by discourses on privacy and safety issues or concerns raised over the ethics of deploying drone technology in surveillance and military contexts. Julia M. Hildebrand recognizes the current ambivalence surrounding drones and seeks "to complicate, challenge and complement" (183) existing discourses with *Aerial Play*, devoting her attention to the recreational use of consumer drones.

Responding to the lack of empirical research on drones, Hildebrand adopts an "auto-technographic" lens and discusses her experiences with her own drone, which she names Jay, alongside those of other amateur drone users. Her methodological toolkit comprises participant observation, interviews with hobby drone users, online ethnographies of drone community groups on Facebook, and visual analyses of drone-generated imagery. To examine the complex human-machine interactions and the changing relations to space that drone use induces, Hildebrand draws on the fields of media ecology, mobilities research, and science and technology studies. The resultant framework, a combination of field research methods, online content analysis, and cross-disciplinary observations, allows Hildebrand to probe into the drone's distinct functions and affordances within broader mobile and aerial ecologies.

A fundamental point of departure for *Aerial Play* is the assumption that consumer drones are more than "unmanned aerial systems," as defined by the Federal Aviation Administration (FAA). To emphasize the incompleteness of FAA's definition, Hildebrand identifies consumer drones "as mobile assemblages of human and nonhuman agencies in hybrid geographies, creative platforms for spatial exploration and visual discovery, and, last but not least, relational artifacts that shape spatial relations, social formations, and affective entanglements" (4). Her definition highlights the role of drones as mobile nodes that not only collect and transmit aerial data but also shape a dynamic network of relations, engagements, and agencies.

One of the defining features of *Aerial Play* is the integration of testimonials from amateur drone users into the study, expanding its scholarly character. Hildebrand gives voice to the grassroots level of drone use, providing a platform for the experiences and reflections of amateur drone users to be considered alongside technical and academic observations. This strategy prevents *Aerial Play* from becoming a rather abstract investigation of drone use and substantiates the author's intention to position the recreational capacities of consumer drones firmly in the discussion of the broader social, technological, and legal implications of drones. In addition, the recurrent inclusion of testimonial excerpts in the book's chapters is another example of Hildebrand's top-down *and* bottom-up approach to the investigation of drones, blending perspectives and mobilities to elicit a more comprehensive "(h)overview" of

recreational drone use, to borrow her inventive term. To this end, Hildebrand also introduces the concept of "drone-logs" (30), entries that combine the drone's live-streamed aerial video with audio from the ground level (via her smartphone's microphone), overlaid with a voice-over of the user's reflections on the process and recorded content. The self-reflective quality of these logs, registering the user's emotional responses to aerial drone play, lead Hildebrand to speak of "affective mobilities" (39), expanding sociologist John Urry's typology.[1] This illustrates Hildebrand's ability to move comfortably across disciplines in her analysis and, quite importantly, to introduce useful terminology on drone use.

After the first two introductory chapters have set the theoretical framework and methodological foundations of *Aerial Play*, chapter three centers on situating "recreational drone use within a larger ecology of heterogeneous material and immaterial relationships" (51). Drone practices in situ are shaped by a number of "temporal, spatial, mobile, and social agencies" (53), which Hildebrand efficiently unpacks to demonstrate how the drone device's exploration of aerial landscape is dependent on various factors on the ground level. Indeed, a combination of contingencies need to be considered before as well as during drone-flying: weather conditions (temporal); various volumetric obstacles, drone-sensitive materials, and zones where flying drones is not permitted or requires a special license (spatial); the arbitrary flight of birds or information regarding relevant plane routes (mobile); and, lastly, the presence of other people (social), which may raise privacy concerns. All these factors are additionally layered by strict FAA regulations on the use of consumer drones and compliance with these regulations is also safeguarded by the drone-user community itself.

In the chapter "Communicating on the Fly," Hildebrand focuses on "the communicative processes that are *in motion* among people, technology, and space" (74). Reversing Mark Andrejevic's claim that smartphones are drone-like in their function, Hildebrand suggests that "consumer drones are mobile media-like in creative hobby practices" (74) and calls for a widening of the field of mobile media beyond the spectrum of smartphones to encompass the drone as medium. This call is supported by a thorough examination of the drone's medial affordances, including performative mobilities and "distinct ways of relating to space" (77). Hildebrand draws on the experiences of users to demonstrate instances where drones can lead to "spatial self-empowerment" (81), as in the case of Diego, who can view a firework display from his backyard safely and promptly; or they can enrich the ways in which users observe, perceive, and experience previously (un)familiar spaces. It is noteworthy that Hildebrand is cautious not to privilege the empowering quality of drones over their "disruptive character" (88). The chapter concludes with a discussion on the crossover between the various forms of data remediated through the drone interface, which leads Hildebrand to argue with conviction that "[d]rone-mediated space is hybrid space" (84).

Aerial Play emphasizes the drone's position within the history of aviation and communication, with the medium's distinct capacities often invoking literacies and skillsets associated with other, pre-existing media. Indeed, familiarization with practices such as "gaming, piloting, racing, and image-taking" (105) shapes the drone-user's ability to handle and harness the full potential of drone technology. Hildebrand discusses the different mobilities

---

[1] In *Mobilities*, Urry proposed five types of mobility (corporeal, physical, virtual, communicative, and imaginative), which Hildebrand expands in *Aerial Play*.

involved in drone use, drawing on Urry's typology and Bolter and Grusin's concept of "remediation." In particular, Hildebrand considers the refashioning of intersecting media "and the respective mobilities" (102) through the drone as an act of remediation. While Hildebrand consistently stresses the importance of following FAA guidelines for responsible and safe drone-flying, she also reveals significant practical (and economic) challenges for hobby drone users. For example, the "double attention to how the drone is moving in the air and what the drone is seeing via the visual live-feed" (108) poses a challenge to the FAA regulation of keeping the drone device within sight at all times. Moreover, the "continuous distribution of attention" is not only "cognitively difficult to maintain" (109) but can potentially have harmful consequences to the environment and its structures, including other people and animals in the area. At the same time, the aerial view afforded by the drone opens up imaginative mobilities beyond human faculties: the drone becomes "a portal for personal aerial mobilities" (111) and offers users a unique sense of empowerment. This leads Hildebrand to speak of "dis/embodied mobilities," as the drone "is both embodying imaginative mobilities and disembodying corporeal mobilities" (173). Hildebrand proposes that the application of the drone's dis/embodying mobilities can "serve as an empowerment for people with physical disabilities" (177), providing a promising avenue for research, technology, and social responsibility.

What distinct kinds of views does the consumer drone's aerial gaze offer to its user? Hildebrand examines this question in the sixth chapter of *Aerial Play*, situating the drone medium within a tradition "of other aerial modes of seeing such as balloons, airplanes, and satellites" (122). Caren Kaplan's concept of "the balloon prospect" in *Aerial Aftermaths*— briefly described by Hildebrand as "a new way of seeing the world by combining the cartographic gaze with the mobile and visual appropriation of space" (124-125)—is introduced as a means of discussing the association of the drone's aerial gaze with notions of aerial power (Virilio; Kaplan, "Mobility") or the "politics of verticality" (Chamayou 53). Acknowledging the "techniques of vision and visualization" that consumer drones afford, Hildebrand focuses on the "performative and playful character" of these techniques, connecting hobby drone use with *individual* spatial empowerment (139). This involves a rekindled sensibility in relation to space that drone users develop "when not engaging in their aerial play"; they become "curious" and "visually cued" to their geographical surroundings, which enhances their understanding of themselves within human and non-human ecologies (124, 146). Hildebrand proposes the term "drone-mindedness" to describe this "*individual volumetric curiosity*" (144), a term that is likely to be adopted by other scholars in the field.

In the final chapter of the study, Hildebrand examines the "affective ties between human and medium" (152), showing how the boundaries between pilot-subject and drone-object are becoming increasingly blurred in the context of recreational drone use. The dynamic interactions between human and machine during aerial play, engineer an appreciation of the drone not merely as an advanced technological device but also as a dance partner and mobile companion. Hildebrand explores how "subjects and objects are in formation and in motion with each other" (155), drawing on Bruno Latour's idea of figuration and entanglement, and informs her discussion with insights from the frameworks of feminist theory (Barad) and media psychology (Turkle). Testimonials from hobby drone users corroborate her scholarly observations and reveal a sense of intimacy and companionship that is deeply embedded in human-drone interaction, each responding to the other's mobilities and signals. Through the

testimonial excerpts, it becomes clear that users often adopt the register of human-pet relationships, embracing the drone's mobile companionship as much as *performing* it.

To bring everything together, Hildebrand positions her findings in *Aerial Play* with reference to Marshall McLuhan and Eric McLuhan's four laws of media: enhancement, obsolescence, retrieval, and reversal. Her remarks emphasize how drones enhance "several ways of seeing, moving, and being" (188) while retrieving and remediating earlier forms of aerial vision and gaming literacies. Lastly, while technological affordances and recreational drone use render rigid distinctions between subject-object, remote-intimate, and mobile-immobile rather obsolete, Hildebrand raises concerns over cybersecurity, environmental disruption, and physical harm if drones are "pushed to an extreme via over-use or over-regulation" (190).

Aerial Play comes at a time of increased concern over data privacy, cybersecurity, and surveillance technology, one that is accelerated by the advent of artificial intelligence. Hildebrand has produced a comprehensive study on the recreational capacity of consumer drones, demonstrating the value of the flying camera as "a powerful tool for vertical explorations, creative expression, geographical literacy, and imaginative mobilities" (143). Hildebrand's combination of auto-technographic style and scholarly output make *Aerial Play* not only a valuable resource for researchers interested in contemporary media studies and mobile ecologies, but also a critical lens through which we can view ourselves and our spatial relations, this time from an elevated, but not remote, perspective.

Works Cited

Andrejevic, Mark. "Becoming Drones: Smartphone Probes and Distributed Sensing." *Locative Media*, edited by Rowan Wilken and Gerard Goggin, Routledge, 2015, pp. 193-207.

Barad, Karen. *Meeting the Universe Halfway: Quantum Physics and the Entanglement of Matter and Meaning*. Duke UP, 2007.

Bolter, Jay David, and Richard Grusin. *Remediation: Understanding New Media*. MIT P, 1999.

Chamayou, Grégoire. *A Theory of the Drone*. The New Press, 2015.

Federal Aviation Administration. "Small Unmanned Aircraft Systems (UAS) Regulations (Part 107)." *United States Department of Transportation*, 6 Oct. 2020, faa.gov/newsroom/small-unmanned-aircraft-systems-uas-regulations-part-107.

Hildebrand, Julia M. *Aerial Play: Drone Medium, Mobility, Communication, and Culture*. Palgrave Macmillan, 2021.

Kaplan, Caren. *Aerial Aftermaths: Wartime from Above*. Duke UP, 2017.

---. "Mobility and War: The Cosmic View of US 'Air Power.'" *Environment and Planning A*, vol. 38, no. 2, 2006, pp. 395-407.

Latour, Bruno. *Pandora's Hope: Essays on the Reality of Science Studies*. Harvard UP, 1999.

McLuhan, Marshall, and Eric McLuhan. *Laws of Media: The New Science*. U of Toronto P, 1988.

Turkle, Sherry. *The Second Self: Computers and the Human Spirit*. MIT P, 2005.

Urry, John. *Mobilities*. Polity, 2007.

Virilio, Paul. *The Vision Machine*. Translated by Julie Rose, Indiana UP, 1994.