

Daria Savchenko

Tung-Hui Hu. *A Prehistory of the Cloud*. Cambridge, MA: MIT Press, 2015. 240 pp. ISBN 978-0-262-33008-4.

Daria Savchenko. Address for correspondence: Hong Mei South Road 5800, East China Normal University, Shanghai, 200062, China. dar-savchenko@yandex.ru.

As cloud technology makes its way into more and more spheres of everyday life—data storage and networks are the most immediate examples—we can expect more and more academic scholarship written on the subject. Tung-Hui Hu explores the cloud as a cultural fantasy, which, as such, is always bigger than its present day technological manifestation. Choosing not to be distracted by the current technical features of what is called the cloud and instead examining the shape of it through its cultural manifestations, the author “turns back the clock to the clumsy moments when the cloud was more of an idea than a smoothly functioning technology” (p. xii).

Nowadays, people know “the cloud” as a symbol for a certain type of network and data storage. We are aware of its virtuality; we are also aware of the materiality behind it, that there are data centers and servers, there are cables, and there are lines of code and people who write them. In this way there are different ways to approach the cloud: you can deal with its virtuality or you can plunge into its materiality. What the author of this book decided to do instead is neither to look too closely at the cables nor to ponder the virtuality of it, but to examine the cloud as a cultural and social phenomenon. With that in mind, three types of sources inform his research: representations of the cloud in American popular media, legal and political records, and corporate advertisements; examples from the world of computer science; and visual culture in the cloud, including photographs, drawings, and videos.

Behind this book is the idea that in order to understand the cloud’s meaning we should realize that the cloud is not about technology as such; rather, it is about space, power, and history. Thus, if we reduce our discussion of the cloud merely to technology, we will fall into the trap of seeing the cloud through an interpretive lens that the cloud itself produced. Instead of exploring the virtual side of the cloud, which in his opinion hides the real landscape of power, Hu locates the cloud within the context of sewers, railroads, televisions, bunkers, and archives. Just as water pipes create a sense of unlimited water resources available to anyone with a turn of a tap, so does the cloud create the illusion of computing power as an unlimited resource. It hides the fact that the cloud, imagined by many as disembodied and invisible, is actually resource intensive, converting water and electricity into computational power. In fact, the cloud consumes so much power that if all data centers constituted a country of their own, it would be the fifth most power-hungry country in the world. It also turns human labor into source: freelancers in Bangladesh or Morocco through manual sweatshop-like labor solve thousands of CAPTCHA problems and screen hundreds of Facebook images to flag them for disturbing content.

Tung-Hui Hu is a former network engineer, now Assistant Professor of English at the University of Michigan, with research interests in the history and politics of new media and in poetry. *A Prehistory of the Cloud* is a product of his knowledge of the technical specificities of the cloud as a network, his ability to reconstruct the genealogy of the system, and a poet's grasp of small things that become meaningful and articulate—especially helpful in the study of the cloud, something considered the epitome of the ethereal, the mute, and the disembodied.

Hu admits from the beginning that his book on the prehistory of the cloud deals only with American examples; he argues that methodologically this makes sense, as the United States exerts significant power over major issues of the internet. More importantly, this serves one of the goals of the book: by using the definite article to talk about his subject, he shows that, despite our reification of “the” internet and “the” cloud, what we have in fact is internets and clouds. By choosing to deal solely with the (American) internet he also aims to explore this belief in American culture.

The book can be placed, if there is such a need, in the field of STS—science and technology studies—and would resonate with the anthropology of technology, the history of technology, and media studies. The cloud is a relatively new topic for these kinds of studies although there have been a few other books published (e.g., Mosco 2014; Peters 2015). Vincent Mosco's *To the Cloud: Big Data in a Turbulent World* gives a mostly historical and cultural overview of “the cloud,” following a rather formulaic path: the concept of the cloud has become potent, and this is why and how. Whereas what makes *A Prehistory of the Cloud* worth attention is that it does not stop at existing views of the cloud, nor does it take the cloud as a starting point for discussion. Quite the opposite: Hu turns back the clock and goes down to pipes, war bunkers, and time sharing to show that the cloud is only an electronic disguise for older and ever more pressing questions of power.

By using “prehistory” in the title, Hu points out that it is not enough to deconstruct the cloud and its prehistory, but it is also necessary to acquire the methodological tools to imagine the cloud in the future. The structure of the book is modeled on the principle of abstraction layers, moving from the least to the most abstract: the cloud as a network (chapter 1), the cloud as virtualization (chapter 2), the cloud as data storage (chapter 3), and the cloud as data mining (chapter 4). “The cloud” is used to denote many different things, and that is often the source of confusion and makes the investigation more demanding. Hu distinguishes (in some ways, arbitrarily, as he admits) the layers of infrastructure, platform, data access, and application and approaches them as archaeological deposits that show what people thought of the cloud at various moments in time and that can serve as sources for understanding all the multiple discourses that form the cloud today.

The cloud as a network has to be understood within bigger debates about network culture, the interface between media and power, which exists against the background of a long-existing “network fever”—a desire to believe that everything is connected. In this way the cloud should be properly seen as a reflection of our own desire to connect everything with everything, and thus the cloud as a desire resides within us.

Before the appearance of personal computers, time-sharing of computers carved out the notion of the “user” that is still relevant today, as it created a sense of personal intimacy with the computer while also disguising the economic mechanism of multitasking and freelancing behind it. Time-sharing anticipated the way that the contemporary cloud encourages its users to take free things. As a consequence, Hu argues, the confusion of personal intimacy for economic intimacy might explain why so much digital culture is powered by user labor and user-generated content: “laboring in a time-shared economy—everything from tagging a photo on Facebook to reviewing businesses on Yelp to answering questions on Amazon—is performed for the love of the task, for personal reasons and during ‘free time,’ even as this labor generates value (if not profit) for the company that administers it” (p. 50).

Dealing with the issue of power, Hu avoids falling into the discussion of the obvious qualities of the cloud as inherently political and contested terrain. Instead he develops an approach to the cloud as a cultural fantasy of shared space and user participation, the cloud that veils the hardware with software and creates the illusion of a medium that is all-encompassing, ever-present, disembodied, and inevitable. He argues that we need to subvert this discourse of the cloud in order to see that, in the end, the cloud does not bring new forms of power but disguises the old architecture and landscapes that have been used for centuries but that are obscured in complex temporalities as we move from physical to electronic spaces.

The cloud’s data centers are housed within repurposed infrastructure, most of it military and from the Cold War era. These centers—as opposed to the ubiquitous displacement and placelessness discourse associated with the cloud—are very much placed within the territory of a certain country; moreover, some data at the highest levels of security is located inside old military bunkers. All of these spaces invoke the feeling of an exterior enemy, a potential threat to data, and the specter of future disaster. Hu argues that “these attempts to shield our data from the flow of time, however, place us in a melancholic relationship to the present, leaving us forever fixated on a loss that is always about to come” (p. 82). Data bunkers demonstrate a kind of explicit power that is rooted in territory rather than in more implicit methods of regulating a population, manifesting a return to what is known as sovereign power.

The final chapter looks at how the idea of the cloud disperses itself in contemporary life. Hu looks at artwork that seems to resist the militarized visual culture of a drone strike that still reifies the categories that it aspires to resist, for example the Dutch radio frequency hackers in the 2011 NATO bombing campaign in Libya, and argues that the cloud constructs a way of perceiving the world that fundamentally constrains our range of actions. In dialogue with Michel Foucault and Gilles Deleuze, Hu writes: “when we gaze at a control society in the hopes of exposing its structure, our gaze ends up acknowledging its right to power.” What would be more effective is to recognize the structural inequality of this relationship and the distance “we have to travel before we reach anything called the truth” (p. 143). Boldly, he concludes that “rather than imagining ourselves as victims of a surveillance state, we are in fact partially complicit with a violence that fails to respect the boundaries between real and virtual space” (p. 115).

The book contains a wide range of stories, pictures, and examples supporting the author's arguments. In my opinion, this movement between different archeological layers of what gets called "the cloud" may sometimes be hard on the reader, but it serves the purpose of not fixating on the material, instead zooming out onto the cultural meanings of the cloud.

REFERENCES

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