

Server Farms Disciplined Machines Behind Noopower

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This essay explores the ways in which older forms of power, specifically discipline and enclosure, are engineered to allow for the new form of power first described by Gilles Deleuze¹ and elaborated upon by theorists such as Maurizio Lazzarato² and Warren Neidich.³ Deleuze famously argued that we have left enclosure behind. Taking up this idea, Lazzarato and Neidich argue that the contemporary form of power is noopower, the power over *nous* or the mind, made possible at a distance via global communication networks. I argue here that, in our euphoria over networks and our fascination with this new form of power that takes limitless thought as its object, we cannot forget older forms of power such as discipline and enclosure. Specifically, inspired by Foucault's *Discipline and Punish* and actor-network theory, I would locate a key space of discipline on the server farm. Although we don't think of machines as being disciplined, the technical structure of server farms maps extremely well onto Foucault's description of the subject within disciplinary enclosure. While I cannot say if servers internalize the disciplinary power meted upon them, I do argue that server farms provide a necessary element for the more open "society of control."

We Have Escaped Enclosure

We are told: we have a new historical moment. We are no longer in Foucault's

disciplinary society, the old society of the 19th century, a society of boarding schools and factories, mental asylums and barracks. It is no longer the case that we move from enclosed space to enclosed space, from one regime of discipline to another.⁴ Now we live in the "Deleuzian century," and Deleuze's "Postscript" is a document cited for the theoretical move past disciplinarity to the "control society," where enclosure is no longer privileged.⁵

Put another way, as Maurizio Lazzarato argues, we live in the time of noopolitics.⁶ Noopolitics, the socialized flow of mind-to-mind communication, underpins our knowledge economy. It is the politics and productivity of *mind* (nous), of knowledge work and immaterial labor.⁷ It arises from the productive possibilities inherent not in the working class or in the masses but in publics: aggregated thoughts. These possibilities arise via action-at-a-distance communication technologies (television, radio, the Internet). Noopolitics is thus, for better or worse, our key way out of enclosure, a space decidedly determined to close off possibilities, to actively and sometimes brutally operate on bodies – not minds – that are disconnected from the outside and connected to one another only via hierarchies. Indeed, enclosure is about the closing off of an *outside* as much as it is about encasing and constructing a subject on the inside. Rather than maintaining this inside/outside dichotomy, contemporary societies of noopolitics feature leaky boundaries and modulated flows of thoughts and ideas. Insides and outsides, hierarchies and orderings collapse as the mind moves about the world.

To use a specific example, for the cosmopolitan, networked citizen of the world, the globe is our office: the coffeeshop in London, the Internet café in Mumbai, the skyscraper office building in Dubai are all settings for our networked, mobile communications. In each new location, our devices enable us to find the best food, Wi-Fi, shopping, and the cheapest labor and most lax environmental regulations, regardless of time and space. From each location, our minds can reach out to act upon others: we Skype with clients, we record lectures and post them to YouTube, we cultivate a following on Twitter, we call our families back home. We can be as distributed as the network itself, flowing in and out of globalized spaces like Special Economic Zones, airports, and tax shelters, acting upon others at a distance. We are the network itself, linked via friendships and followings. We are the Human Network, as Cisco tells us.

Where knowledge and information economics allows for flows in any space, the old forms of enclosure – whether they be the prison, hospital, factory, school, or family – appear to be in a crisis.⁸ As Deleuze argues, "everyone knows that these institutions are finished, whatever the length of their expiration periods. It's only a matter of administering their last rites and of keeping people employed until the installation of the new forces knocking at the door."⁹ We might say this crisis has only extended since Deleuze described it two decades ago, especially with the popularization of global networks and networked subjectivities. The subject has escaped the enclosure, and the mind moves about in global flows, being modulated into new shapes by new institutions and resisting such modulations in infinite ways,¹⁰ perhaps best symbolized by the potentially radically distributed topology of the Internet, or by John Perry Barlow's "Declaration of Independence of Cyberspace": we are of the "new home of Mind."¹¹ As Lazzarato puts it, "The Weberian 'iron cage' has been broken, the monads have fled from the disciplinary world by inventing impossible worlds which are actualised within the same world."¹² Now is the time of noopolitics, of minds and perception and the virtualities that are ever possible and always forming.

Discipline on the Server Farm

But in the escape from disciplinary, hierarchical, and enclosed spaces for the smooth pastures and endless networks of noopolitics, the subject left something behind, something decidedly disciplinary, something more akin to Foucault's *Discipline and Punish* than our current experiences. There are still factory-like concentrations, distributions in space, orderings in time, and productive forces more powerful as a whole than its components. These are server farms: centralized collections of computers, networked together and providing data storage and processing for Internet services. As Stephanie Mehta writes in a *CNN Money* article,

The industry term for the vast rooms full of humming, blinking computers inside each of these complexes is "server farms," but "work camps" would be more accurate. Consider that every time you conduct a web search on one of Yahoo's sites, for example, you activate roughly 7,000 or more computers - and that doesn't count at least 15,000 others that support every query by

constantly poking around the Net for updates. "When you go to certain parts of a data center, it looks much more like a factory than something high-tech," says Urs Hölzle, a senior vice president of operations at Google.¹³

Mehta's article contrasts the freeness and magic of email, online video, and social networking – consummate noopolitical forms - with the rigidity of the server farm.

Indeed, the server farm retains all the characteristics of Foucault's disciplinary enclosure:¹⁴ servers are enclosed within large warehouses often with secured barriers for entry, not unlike the barracks and prisons we have supposedly left behind. Physical security of the farm is a key consideration when administrators select a location.¹⁵ Limited access to the facilities, secured power supply and cooling systems, alarm systems, and the creation of "buffer zones" around the server farm are all used to physically enclose the server farm.¹⁶

Within this enclosed space, automated systems conduct constant monitoring of the network and hardware status. Firewalls stand between the server farm and unwanted external users. Every port is monitored for malicious activity, and any suspected intruder is blocked from using the servers. If malicious activity is found to be originating from within the system, the source can be stopped. Very often these systems are fully automatic, with human operators watching as programmed algorithms and security rules monitor the system.¹⁷ Automatically engaged backup generators are on standby in case the main power supply fails.¹⁸ Surveillance constitutes this enclosure.

Furthermore, server farms are partitioned, with specific, hierarchical arrangements of machines and data in a functional space meant to increase efficiency and production.¹⁹ Servers are arranged in ranked tiers (Web servers in front of business servers in front of data servers), all of which are behind specialized routers that help distribute the load of requests and data serving. These routers in turn are behind authoritative DNS servers and the network itself.²⁰ On the farm, data is arranged with more commonly requested data stored in more commonly used partitions. Efficient allocation of resources is the goal, and time (in the form of latency and processing speed) is measured in increasingly granular increments.²¹ This is a

concatenation of heterogeneity (i.e., individual machines) into the ordered multiple: "disciplinary tactics is situated on the axis that links the singular and the multiple. It allows both the characterization of the individual as individual and the ordering of a given multiplicity."²² Each individual machine brings unique abilities to the farm (i.e., better processing and storage), and as each server "dies" it can be replaced. As needed, the farm can scale up: new individual machines can be articulated into the overall architecture, boosting storage and processing power. This is not unlike adding new machines to a factory or new bunks to a barracks.

Returning to Barlow's "Declaration," yes, we are of the "new home of Mind," perhaps, but there are "weary giants" of steel (and plastic, and cadmium, and lead, and mercury) arranged in disciplined rows underpinning our noo-subjectivities. Stephanie Mehta, the *CNN Money* reporter, hit on something with her metaphor of "work camps": such a dreary, totalitarian phrase is more often used in describing events in our past or places in "backwards" regimes: times and spaces of discipline.

The server farm is an economy of discipline that so well maps onto Foucault's description that it is a wonder we don't think of it as such. However, what is remarkable about the server farm is that it largely encloses and disciplines *machines*, not people (although of course there are workers tending these machines). Perhaps that's why these centralized data centers are not mapped on the distributed topologies we favor.²³ Machines, it appears, cannot be imagined to be disciplined. They hardly get mentioned at all in the new euphoria over limitless noopolitics. Instead they disappear into ephemera like networks and clouds.

Perhaps then it is time to take seriously the turn to post-humanism (found in actor-network theory, object-oriented ontology, and Bogost's *Alien Phenomenology*²⁴) to see how assemblages of power operate on *both* humans and non-human objects. Latour argues that power is not held, but is rather a practical effect of actor-networks that include actants such as machines.²⁵ Actants enable power to function. Racks, processors, hard drives, fans, cables, routers, power supplies and conditioners, physical security systems, algorithms monitoring data flows, rack screws, cool atmosphere, low rent, concrete, steel, technicians: all these are brought together in an ordered, hierarchical system that a Foucauldian android might immediately recognize

as a disciplinary enclosure. But to what end? What new form of power does this "old" assemblage of power serve?

Disciplined Machines Enable Noopower

Within the free flows of noopolitics, the limitless productivity of thought must meet resistance somewhere, and they do so in the institutions of noopower. Following Gabriel Tarde, Lazzarato argues such institutions are concerned with "the control of opinion, of language, of regimes of signs, of the circulation of knowledge, of consumption."²⁶ Drawing on Keller Easterling, we would say then that the institutions that aim to subtly shape disposition²⁷ are those of noopower: marketing firms, political pollsters, educational institutions, and media monopolies (including traditional media and the new social media). Each of these works not to dominate but to modulate tendencies and probabilities of thought and action both inherent and actual in various publics.²⁸

Because of this, noopolitical production is the object of the institutions of noopower. In a latter-day take on the famous Francis Bacon dictum, noopolitical production to be commanded must be obeyed. That is, institutions of noopower must actively listen to the aggregated thoughts and desires of subjects in order to modulate them. Foucault's pastoral power provides a description of noopower: "this form of power cannot be exercised without knowing the inside of people's minds, without exploring their souls, without making them reveal their innermost secrets. It implies a knowledge of the conscience and the ability to direct it."²⁹ There is no better description of our contemporary desire for transparency and confession across media, governmental, and educational settings. Across all sectors of life, we are asked to reveal ourselves, to declare our thoughts, needs, and desires³⁰, and we are encouraged to do so via digital networks.

As such, server farms – disciplined, enclosed, even atavistic, redolent of the 19th century – are a key infrastructural element of the institutions of noopower. For marketing, polling, education, and government, data is the coin of the realm, and this coin is best minted by networked subjects who are free to express themselves anytime anywhere via digital networks. True noopower accrues to those firms like Twitter, Facebook, and Google who own the servers through which networked expressions flow. Their server farms

are always on, always ready, efficiently absorbing and storing networked traffic in rationalized archives. Such concatenated machines become key actants – things that make a difference – in the larger systems of noopower. Based on such data, targeted message (from advertisers, from political candidates, from educators) can be constructed, shaping the possibilities of thought of subjects.³¹

Thus, regardless of the shape of our social order, one element of Foucault's theory holds true: we all are to be made socially productive no matter where we are in time and space. Some instantiation of power emerges to ensure that this is so. Even if we humans have escaped enclosure, enclosures still exist and operate on major nodes of our networks, the collections of computers serving us data. This linkage of free-flowing thoughts to disciplined machines organizes how we experience noopolitical possibilities. Cloud computing, mobile networks, location-aware apps, asynchronous communication: all enable global flows, and all are themselves enabled by disciplined server farms that organize organization.

Such systems are the disciplined heart of the society of control. For Lazzarato, Deleuze's society of control – a core idea of our “Deleuzian century” - must be read as a potent *mix* of discipline, biopower, and noopower. That is, we should not fall into a teleological trap and assume that the age of discipline is behind us, and that the age of biopower will soon be over. To riff on Derrida, we will always be haunted by Foucault's ghost.

And we should not forget the material substrates that underpin our immaterial musings. Lazzarato uses the example of the USA to illustrate this: the U.S. is a mix of discipline (with a massive prison population), biopower (with the highly developed insurance and health systems), and noopower. Server farms as disciplined enclosures are one such putatively atavistic disciplinary institution that makes the society of control possible – along with prisons, military complexes, and global factories. The subject has resisted and escaped enclosure but the “new forces knocking at the door” have established a new topography of control, and they are not afraid to use discipline to do so, even if the discipline is largely directed at machines and algorithms, letting human thought roam free.

Notes

- 1 Gilles Deleuze, "Postscript on the Societies of Control," *October* 59 (1992): 3–7.
- 2 Maurizio Lazzarato, "The Concepts of Life and the Living in the Societies of Control," in *Deleuze and the Social*, ed. M. Fuglsang and B. Sørensen, (Edinburgh, Scotland: Edinburgh University Press, 2006), 171–190.
- 3 Warren Neidich, "Neuropower," *Atlántica Magazine of Art & Thought*, 48–49 (2009).; Deborah Hauptman and Warren Neidich, *Cognitive Architecture: From Bio-politics to Noo-politics; Architecture & Mind in the Age of Communication and Information*, (Rotterdam: 010 Publishers, 2010).
- 4 Lazzarato, "The Concepts of Life and the Living in the Societies of Control," 178.
- 5 Deleuze, "Postscript on the Societies of Control."
- 6 Lazzarato, "The Concepts of Life and the Living in the Societies of Control."
- 7 Hauptman and Neidich, *Cognitive Architecture*, 11.
- 8 Deleuze, "Postscript on the Societies of Control," 4.
- 9 Ibid.
- 10 David Savat, "Deleuze's Objectile: From Discipline to Modulation," in *Deleuze and New Technology*, ed. David Savat and Mark Poster. (Edinburgh, Scotland: Edinburgh University Press, 2009) 45–62.
- 11 John Perry Barlow, "A Declaration of the Independence of Cyberspace," *Electronic Frontier Foundation*, February 8, 1996, projects.eff.org/~barlow/Declaration-Final.html.
- 12 Lazzarato, "The Concepts of Life and the Living in the Societies of Control," 177.
- 13 Stephanie Mehta, "Behold the Server Farm!" *Fortune Magazine*, August 7, 2006, money.cnn.com/magazines/fortune/fortune_archive/2006/08/07/8382587/.
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- 15 Kenneth J. Knapp, Gary D. Denney, and Mark E. Barner, "Key Issues in Data Center Security: An Investigation of Government Audit Reports," *Government Information Quarterly* 28, no. 4 (2011): 533–541.
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 - 22 Foucault, *Discipline and Punish*, 148.
 - 23 For example, see Paul Butler's map of Facebook friendships, and an analysis of this map: <http://www.socialtextjournal.org/blog/2012/08/-appearing-not-once-but.php>.
 - 24 Ian Bogost, *Alien Phenomenology, or What It's Like to Be a Thing*. (Minneapolis, MN: University of Minnesota Press, 2012).
 - 25 Bruno Latour, "The Powers of Association," in *Power, Action, and Belief: a New Sociology of Knowledge?*, ed. John Law, (London; Boston: Routledge & Kegan Paul, 1986), 264–280.
 - 26 Lazzarato, "The Concepts of Life and the Living in the Societies of Control," 182.
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 - 28 Savat, "Deleuze's Objectile."
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