Beyond the Panopticon:

Strategic Agency in an Age of Limitless Information

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Abstract

To what extent is it possible – or desirable – to disengage from the growing cultural database? How do surveillance and "sousveillance" play a role in the policing of individuals by institutions, and vice versa? Can we disentangle the issues surrounding localized record keeping from globalized control over the archives? In this article, we discuss a range of cultural practices, epistemological regimes and intellectual discourses that have emerged to cope with these questions, and we assess the strategic options for communitarian and individual agency in an era we describe as "the end of forgetting."*

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In recent years, the digitization and databasing of sociocultural information has led to a glut of data that upends traditional knowledge/power dynamics. Models of structure and agency based on the presumption of informatic scarcity are giving way to newly emergent forms and practices centered around shaping the flow of information, influencing knowledge production mechanisms, and efficiently assimilating and exploiting oceans of data. In other words, social power is no longer premised solely on what we conceal; rather, it is constituted as well in the act of revelation, and in the methods by which we collect and reveal information to and about ourselves and others.

To what extent is it possible – or desirable – to disengage from the growing cultural database? How do surveillance and "sousveillance" play a role in the policing of individuals by institutions, and vice versa? Can we disentangle the issues surrounding localized record keeping from globalized control over the archives? Do traditional notions of "transparency" still adequately address the democratization of power in a post-scarcity information society?

Many of us voraciously demand and consume ever larger volumes of information, but are surprised or even horrified when we contemplate the growing amount we produce. To resolve this tension, we need to develop new models of communication that capture the contours and trade-offs of transparency and opacity. Foucault's metaphor of the Panopticon, though still relevant,[1] needs to be supplemented with a wider range of architectural blueprints.

This article attempts to disentangle the related discourses around transparency, privacy, and surveillance by introducing the concept of "information flux," which encourages us to consider the rate of information storage and flow separately from the net direction of that flow. The resulting models provide us with the concepts and language to begin a more productive debate over the struggle to control these flows, and to better understand the personal, social, and cultural implications of its outcome.

We articulate a space of behavioral possibilities that outlines the spectrum of communicative choices available in an era we describe as "the end of forgetting". We also discuss a range of cultural practices that have emerged to cope with these questions, and we assess the strategic options for communitarian and individual agency, as well as institutional power. Our discussion covers diverse phenomena and thought experiments, situated in this space of possibilities, as we strive to find a productive balance between the equally reductionist utopian and dystopian models that are commonly invoked in the discussion of these issues.

The End of Forgetting

'Remembering' has always been a primary function of media, dating back to the invention of the alphabet and writing.[2] Software is especially good at this function and the digital revolution can be understood as the discovery of a general technique for representing data *and processes* in a manner that can be stored, retrieved, and reproduced. Although the challenges of long-term digital preservation make librarians break out in a cold sweat, purging digital records is an effort which can actually cost

more than it saves. The situation is easier to grasp by contemplating that, unlike matter or energy, information does not obey any conservation laws; it can be shuffled around and duplicated freely without affecting the original.[3] With duplication, transmission, and storage costs approaching zero, tracking down and deleting information that has already been released can be a Sisyphean or Quixotic effort.[4]

The relationship between the growth in surveillance and transparency and the improvements in the technologies of representation, storage, and access is undoubtedly complex. Attempts to establish fixed causal relations between cultural practices and their technological counterparts are often distracting, as these categories ultimately represent different aspects of unified phenomena. Dramatic improvements in record keeping can be correlated with dramatic shifts in the rate and volume of information flow. However, the direction and significance of these flows is something that needs to be carefully worked out.

Increasingly, machines function as cognitive prostheses, and the media we build are ever closer to approximating the phenomenology of lived experience (in many ways, they are more faithful than actual memory). Records continue to extend, evoke, and replace our experience of memories. Yet, unlike memories, records are effectively permanent, part of an ever-growing archive. The era we are embarking on may well be described as "The End of Forgetting." We use the phrase to signal the close connections between memory and identity, and to raise an important question—who is doing the remembering?

The tight relationship between memory and identity has been a mainstay of philosophy, psychology, and fiction for centuries.[5] The terrain most often explored is the connection between the loss of memories or amnesia and the ways in which this alters, compromises, or threatens personal identity.[6] However, an exploration of permanent memories, the obverse condition, has been largely neglected, with a few exceptions.[7] The spectre raised by omniscient surveillance and perfect transparency is an idea that deserves broader and more in-depth treatment, both ethically and strategically.

We are already witnessing the initial political effects of these changes, as various constituencies maneuver to increase the flow of information in their direction. Citizens are clamoring for more transparency in government and the private sector. Governments and corporations are constructing the apparatus to surveil, analyze, predict, and control the behavior of their citizens and customers. Organizations of all kinds are clamoring for increased intra-network transparency in their communications, often at the expense of individual privacy.

Perhaps no segment of society has more thoroughly internalized the new paradigm than youth culture. Today, most young people (and an increasing number of adults) throughout networked society volunteer an ever-growing volume of personal data, from the mundane to the profound, with little apparent regard for its recoverability, using services such as MySpace, Facebook, and Twitter. This behavior resembles transparency, but the asymmetrical control over these records is cause for concern. Historically, we have taken for granted that we know more about our lives than any

third party possibly could, and this knowledge has been vital to our sense of ourselves. The fact that digital databases can now know more about us than we know about ourselves suggests that the very process of identity-construction is in distress.

Information Flux

These competing flows of information exchange are happening within a rapidly changing context. While society is negotiating the directional flows of information, the sheer amount of information being collected continues to rise. The vast number of records that are being collected, correlated, and analyzed will have a strong impact on personal and organizational identity, irrespective of the net direction of information flow. However, while the rise in the volume of records being collected seems increasingly inevitable, the net direction of their flow remains to be decided. This open question—who is doing the remembering?—is an essential component of the emerging knowledge/power dynamics.

The physical sciences make frequent use of a measurement known as flux: the rate of flow of "stuff" passing through a given surface. The flow of particles, fluids, heat, and electro-magnetic fields can all be quantitatively described by this analysis, yielding valuable generalizations and predictions.[8] The description of this flow has a geometric representation that is useful for imagining the logical space of possibilities. Many physical laws have been formulated based on the direction, rate, and net passage of "stuff" across the boundaries of the surfaces being studied.[9]

This model can help us to conceptualize the quality and shape of the information society that we are in the midst of co-constructing. While the sheer quantity of information changing hands is certainly an important factor in understanding the current transformation, equally important is the relative rate at which various individuals send and receive information, the gradient of the information flow, and whether the flux is negative, positive, or neutral.[10] The designation of 'positive' and 'negative' is not intended to signify any ethical or strategic value. By mathematical convention *positive flux* leaves a closed surface, and *negative flux* enters a closed surface.

Consider our "personal information clouds" as metaphorical enclosing surfaces.[11] The information flux represents all the information that passes through this boundary. We are hurtling towards a society in which data collection, storage, and analysis are ubiquitous and pervasive. However, these capacities are not likely to be evenly distributed[12] and there are already major variations in the net flux of information and the capacity to derive meaning from it.

Simply put, regardless of the quantity or nature of the information being captured, the information flows we are describing can be divided into three broad geometrical outcomes: 1) Positive flux—you are leaking information, and others have access to more than you do. 2) Negative flux—you gather and retain more information than you emit. 3) Neutral flux—everyone has equal access to everyone else's information, a situation we could describe as a form of perfect transparency.

A corollary of this detailed and permanent history is an increasing ability to predict and foretell future behavior.[13] Additionally, variations in the information flux and in the expertise and resources to analyze this information, will determine who has access to these predictions. We can also extend our fundamental unit of analysis from an individual to a community or an organization, and describe the information flux within and across the boundaries of these groups.

This model is an approximation which disregards important features in the production of identity and meaning. Information is not synonymous with knowledge, and inferences and interpretations do not flow freely across personal boundaries. Information is not arbitrarily interchangeable, and some pieces of information are far more valuable or private than others. Information is produced within a network, and the reduction of this flow to a two-body problem disregards the information that one node might provide about another to third parties. Nonetheless, this model still captures important contours of the dynamics of knowledge exchange and helps us to contrast pure transparency with its alternatives based on differential access to information flows and computing resources.

The terms 'positive' and 'negative' are not intended to be normative. Positive information flux is not necessarily a good thing, and negative information flux is not necessarily bad. In some circumstances leaking information can be benign or even desirable, provided the person absorbing the information can be trusted. Children have negative flux in relation to parents, patients in relation to doctors, sometimes students in relation to teachers. If these authorities have good intentions, these relationships can work well. Parents, teachers, and doctors can also be terribly dangerous if they have malicious or unethical intent. We try organizationally to restrain the power of information-rich actors, like the examples above, as well as governments and corporations, in order to keep them honest and socially beneficial.

Beyond the Panopticon

The Panopticon is central to Foucault's analysis of the knowledge/power dynamic and is regularly invoked as a starting point in conversations about surveillance societies. However, the range of informatic architectures has widened in the three decades since he introduced the metaphor to social theory, and we need to add some new "blueprints" to our arsenal. In the past few years, many neologisms have emerged that gesture at the limitations of the Panopticon model,[14] though a complete review of this literature is beyond the scope of this article. Rather than simply adding another term to the mix, the information flux model attempts to provide an overarching framework for situating the traditional Panopticon alongside its modern variations. Can we update the Panopticon by introducing 21st century building materials? Can we extend the Panopticon's analytic utility by substituting glass and mirrors for its concrete and steel, and outfitting the building with closed-circuit television cameras? What might this family of blueprints look like?

Using the flux model, we can begin to sketch the dimensions of a space of strategic action within this environment, on several levels, including individuals, communities, organizations, and states. Below, we describe some specific strategies and thought

experiments that may help us to clarify the challenges and opportunities surrounding privacy and identity in an information rich society. These examples are not meant to comprehensively catalog the available strategies, but rather to highlight the diverse range of strategies available. These examples also demonstrate the flexibility and utility of the information flux model, and suggest a systematic agenda for future research.

Traditional Panopticon–The traditional Panopticon describes a prison where the inmates are surveilled by their guards from above. The inmates know they are being watched, though they don't always know when, and their behavior is controlled by the mere threat of being watched. This standard model of surveillance can be construed as a positive flux of information emanating from the individual outwards to the institutions of power. It doesn't adequately capture the nuances and complexities of multi-directional information flows, but it does correspond closely to Orwellian "Big Brother" scenarios[15] which can no longer be considered either speculative or delusional. As the American Civil Liberities Union[16] and professional journalists have documented[17], these architectures are rapidly becoming realities, and must be met strategically by the surveilled population.

Sousviellance Society–A flip in the polarity of flux described by the traditional Panopticon model occurs when the individual participants disrupt the power relation of the traditional Panopticon by collaborating to watch the watchers. S*ousveillance*[18] is a term used to describe the recording of an activity from the first person perspective of a participant. By participating in the surveillance processes (both as surveillant and object of surveillance) actively and transparently, individuals can both mediate and understand the personal information they are transacting, and mitigate the inequity of information flow by surveilling the institutions in return.

This is the strategy undertaken by the protagonists in Cory Doctorow's novel, Little Brother,[19] in which a group of teenage computer hackers, building a virtual samizdat network between the XBOX game consoles in thousands of kids' bedrooms, document and expose the abuses of power committed by the Department of Homeland Security after they have been unjustly detained and tortured in the wake of a terrorist attack. The power of sousveillance has recently appeared in the headlines, as the integrity of a parole officer has been questioned by a defendant on the basis of the status updates he published on MySpace.[20]

Total Transparency–This theoretical and unrealizable model describes a world of total transparency in which every person and organization has equal access to each other's information. This corresponds to a neutral information flux, forecast in David Brin's *The Transparent Society.*[21] This model postulates the end of privacy, but it fails to adequately account for the differential access to analytic processing power available to different individuals and organizations in making sense – and use – of this data.

This strategy is often touted as the solution to institutional corruption, as open government and transparency movements continue to gain momentum and traction.[22] The communications of US Presidents must be made available to the public according

to the Presidential Records Act of 1974. Similarly, US Federal court proceedings, including depositions, evidence, arguments, and rulings must be published in a manner accessible to the public without anyone having to request them, except when the court decides there is a good reason for the records to be sealed.

In the past few decades public policy has shifted from a focus on regulating specific institutional behaviors, towards focusing on broader ethics, such as transparency. For instance, although the FDA doesn't necessarily require that food manufactures use or ban certain ingredients, it does require them to add ingredient information to their packaging with the exception that better informed consumers will influence corporate behavior through their purchasing decisions.[23] Some have placed great faith in the power of transparency to improve accountability and, in turn, exert market pressure on institutional behavior. However, the success of these transparent systems hinges greatly on the details of their design.

Off the Grid–The "Off the Grid" strategy describes efforts to disappear as thoroughly as possible from the information exchange, and to reduce information flux to zero. For the individual, this strategy is enacted by actually disengaging from the telecommunications network, or by encrypting and obscuring the information we transact, and by refusing to use credit cards, mobile phones, ATMs, or any of the myriad points of surveillance we now encounter in our daily lives. Theodore Kaczynski, the infamous "unabomber," lived in a cabin without electricity or running water in an attempt to disengage from what he called the "industrial-technological system."[24] Similarly, Gene Hackman's character in the 1998 film Enemy of the State, an ex-NSA operative named Brill, exemplified the extreme of this strategy, living within a self-constructed copper Faraday cage to shield him from electromagnetic detection. Secret police and black operations are the state-sponsored counterparts to this strategy.

Black Hole–The "Black Hole" strategy describes attempts to collect and analyze as much information as possible from the outside, while leaking as little as possible. The US National Security Agency embodies this strategy, as domestic evesdropping programs track and analyze massive volumes of data and metadata. Often, but not always, combined with elements of the "off the grid" strategy, the "black hole" strategy maximizes negative information flux by ingesting as much information as it can process. Corporations like Google and Facebook have built their empires around this strategy[25], underscoring an important point. What constitutes a leakage to users of these sites supports the exploitative black hole strategies of the service providers. One nodes's "promiscuous broadcasting" is fodder for another's "black hole".

Promiscuous Broadcaster–The "promiscuous broadcaster" strategy" can be practiced non-strategically or strategically depending on the actor's awareness and beliefs. It is similar to total transparency, but does not require symmetrical exchanges of information.

Some individuals ignore the threats of surveillance completely, rationalizing – "I've got nothing to hide, ergo nothing to worry about," or convincing themselves that the benefits to our security represented by increased surveillance outweigh the detriments to our privacy. In today's networked interactive environments, these people are leaking volumes of data (positive information flux). Others may act more

deliberately by retaining copies of the information they broadcast. An extreme example of this strategy is Hasan Elahi's "tracking transience" project. Elaih, a media artist and Assistant Professor at San Jose State University, was erroneously added to the US government's terrorist watch list and targeted by the FBI. His response was to openly broadcast (and retain) all the details of his life to the public, in a proactive attempt to clear himself of any suspicion of wrongdoing associated with profiling based on his name and/or ethnic background.[26]

Organizations and knowledge communities have also successfully adopted the promiscuous broadcaster strategy, both internally and with outsiders. Academics promiscuously broadcast information in journals, directed at each other, but accessible to anyone. Open source communities often practice radical forms of promiscuous broadcasting, publishing the minutiae of their communications and decision making. In both cases these communications are more complex and varied than a think-tank's or a corporation's messaging. This communications strategy increases the accountability and knowledge sharing within the community, but may confuse outsiders who are ill equipped to make sense of these raw exchanges.

Voracious Collector–The "voracious collector" strategy involves maintaining a consistent negative information flux, but it differs from the "Black Hole" strategy in not requiring the participant to go partially "off the grid." A good way to imagine how an individual might follow this strategy is to consider how the right software might support this practice. The BioPort (Biography Portal) is a piece of "intension-ware" that we have described in technical detail elsewhere.[27] The basic idea for this software begins with a combination blog, diary, and appointment book – essentially, a tool for constructing your autobiography in real time. We can even imagine informational transaction capabilities: Just as we receive little yellow receipts at the completion of financial transactions, the BioPort could keep track of all exchanges with "informational receipts."

To make this fictional scenario more vivid, consider a thin slice of your BioPort—your nutritional history. While Corporations like Wal-Mart and McDonalds might want to use such data to target you with lower-nutrition, higher-margin foods, you would be able to use the same data to make sure your nutritional needs were being met adequately within your budget. Ultimately, you could transact the data with food providers to negotiate the best balance between nutrition, taste and cost.

The technology would have ramifications for identity-building, as well. With the right suite of visualization and analysis tools, the BioPort could become the ultimate psychoanalytic device—one which allows individuals to know themselves better by helping them identify and discern recurring behavioral and informativ patterns in their own lives. It could also transform social spaces, by allowing communities to come together and securely share slices of one another's BioPorts.

Although the BioPort only exists as a thought experiment today, we are beginning to see some concrete moves in this direction. For instance, The Berkman Center at Harvard has initiated a Vendor Relationship Management project that implements a flux reversal strategy to help consumers manage their relationships with corporations.[28]

Disinformation Campaigns–Another strategy for managing the net flux of information is to propogate *mis*information, thereby reducing the flow of *accurate* information outwards and producing a more negative flux overall. This strategy is familiar at the institutional level, in a variety of contexts from political propaganda to advertising campaigns, to corporate "astroturfing."[29]

It also has begun to appear as a strategy for individuals to mitigate the threats of surveillance on social networks. Face Painting is an underground collaborative game designed to resist the privacy threats that Facebook poses. From the Urban Dictionary:

> *Face Painting (also referred to as 'MySpin') is internet slang for the practice of sprinkling a social networking profile with embellishments, fantasy, and satire, often with humorous or political intentions. Face painters play with the truthiness of identity by conducting a campaign of misinformation to protect their true identity.*[30]

This strategy, though it may appear on the surface to be no more than a mischievous lark, has significant ramifications for information flux. By reintroducing chaos and noise back into the system, face painters protect their identities with a campaign of disinformation, and game the corporate profiling technologies with odd juxtapositions and preferences. These campaigns also aim to raise awareness around omniscient surveillance, and in particular to critique Facebook's problematic privacy policies. Face painters have assembled teams for scavenger hunts, recruiting the children of corporate executives to join oppositional causes (e.g. the child of an oil company executive to join an environmental campaign, or the child of a record company executive to join a campaign for progressive Intellectual Property reform).

Face painting won't significantly divert the torrential flow of information, but it does cleverly illustrate how individuals can reassert control over their digital footprint, and redirect the net information flux if they are aware of its significance.

Spaces of Action

This preliminary catalog of communicative strategies gestures at the span of choices available to actors in an information-rich environment. The information flux model helps us to discover and situate these strategies in relation to each other. An understanding of this range of possibilities is essential for creating a space of effective resistance.

Individuals, communities and organizations have very similar options within this space. They can choose to actively receive or ignore the information that flows past them. If they collect the information, they can archive, index, and analyze it. They can choose to send or withhold information about themselves. The information they broadcast can be truthful or spoofed.

This spectrum of strategies defines space of actions with varying information flux characteristics. Different strategies correspond to different ways of arriving at similar differential values of information flux. For example, negative flux can be increased by

voraciously collecting more information or by broadcasting more disinformation. A technology like the BioPort is one way to support individuals maintaining a negative information flux, and continue living in a society where the flow of information is centered around the individual. This social reality is distinctly different than a perfectly transparent society. Prevailing currents are steering the flow of information away from the individual into the waiting hands of those who would benefit from the control over their records and memories. However, we can imagine technologies and strategies to redirect the flow of information back around the individual and achieve more balance and control over our digital footprints.

Conclusion

Freud and his followers postulated a depth model of psychology in which suppression, repression, and the ability to forget are vital aspects of our psychological makeup. These defense mechanisms, which allow us to maintain our sense of self, rely upon our ability to selectively recall and subconsciously filter the personal narratives that are consistent with the reality we want to believe. Our ability to cope with trauma and stress depends upon the function of forgetting. We doubt we are alone in contemplating the discomfort of revisiting the growing pains of childhood with the precision of modern day surveillance apparatus. And yet, this is the world that we are on the verge of establishing, without the slightest consideration of the consequences, for every child born throughout network society in the 21st century.

Perhaps more shocking than memories that can't be filtered and don't dissipate, is the impact that surveillance might have on deception. Arguably, modern day society is founded on lies,[31] ranging from small little white lies between friends and neighbors, to corporate advertising and marketing, to Orwellian political spin, to the lies we tell ourselves to bolster our confidence and support our identities. Pervasive surveillance threatens to rip apart the fabric of constructive deception that currently weaves together individuals, social groups, and nations.

The net flux of information flowing into and out of individuals, communities and institutions will have a significant impact upon the emerging models for network society. Depending upon whether the net information flux is negative, positive, or neutral, we will begin to see dramatic shifts in the balance of knowledge and power that exists between citizens and governments, consumers and corporations, and even individuals and others.

A positive flux of information from institutions of power to individuals may improve social equality and individual agency by providing accountable checks and balances through distributed oversight. However, the design of these information systems are complicated by the details of representation, storage, and access which can undermine and thwart these balancing forces. Furthermore, reasserting the right to privacy, and even anonymity, may be a central component in sealing the personal information leaks that are distorting the balance in information flux, and assuring the future of democratic political states.

Considering what is at stake, we have an obligation to proceed with rigor and caution

when introducing technologies whose implications can potentially disrupt the structure of our personal identities and social networks. The differences between a negative, positive, and neutral information flux need to be analyzed in greater depth.

* The authors would like to thank Eben Moglen, Michael Schudson, and Gabriella Coleman for comments and inspiration.

1 Foucault's analysis of Bentham's Panopticon is a regular starting point for discussions of a surveillance society. Michel Foucault, *Discipline & Punish: The Birth of the Prison* (Vintage, 1995).

2 Plato, *Phaedrus,* 275c-e.

3 Tom Siegfried. *The Bit and the Pendulum: How the New Physics of Information is Revolutionizing Science*. (New York: John Wiley & Sons, 2000). See also, "Elements of Reality: A Dialogue", by Piet Hut, P. & Bass van Fraassen,. 1997, J. of Consc. Stud. 4, No. 2, 167-180, and J P Barlow "Selling Wine Without Bottles on the Global Net: The Economy of Mind on the Global Net." In High Noon on the Electronic Frontier : Conceptual Issues in Cyberspace (P Ludlow (ed).MIT Press, MA, 1996).

4 For instance, research firm BigChampagne recently reported that rock band U2's new album was leaked and downloaded by nearly half a million P2P users prior to its official release date. Similarly, the US courts have recognized that injunctions limiting information that has already been disseminated are unenforceable (see <http://www.eff.org/cases/eli-lilly-zyprexa-litigation>.

5 For example, in Chapter 24 (Of Collective Ideas of Substances) of *An Essay Concerning Human Understanding* Locke develops a theory of personal identity predicated on the continuity of conscious memory. (John Locke, *An Essay Concerning Human Understanding*, 1841). A seminal 20th century analytical treatment of personal identity is: Derek Parfit, *Reasons and Persons* (Oxford University Press, USA, 1986).

6 Fictional films that deal with this theme include Vertigo (1958), La Jetée (1962), Total Recall (1990), Twelve Monkeys (1995), Memento (1996), Eternal Sunshine of the Spotless Mind (2004), Paycheck (2003). A great antholgy of short stories on identity and amnesia is Jonathan Lethem, *The Vintage Book of Amnesia: An Anthology of Writing on the Subject of Memory Loss* (Vintage, 2000).

7 A few titles we have encountered that explore this terrain, sometimes indirectly include the films Minority Report (2002), A Scanner Darkly (2006), The Final Cut (2004), and the books Jorge Luis Borges. "Funes, The Memorius". *Labyrinths*. (NY: New Directions, 1969), Arthur C. and Baxter, Stephen. Clarke, *Light of Other Days, The.* (Tor, 2000), Vernor Vinge, *Rainbows End: A Novel With One Foot In The Future*, 1st ed. (Tor Books, 2006), David Brin, *The Transparent Society: Will Technology Force Us to Choose Between Privacy and Freedom?,* (Basic Books, 1999).

8 The notion of flux has informed our understanding of light (electromagnetism), heat (thermodynamics), and motion (mechanics). See, for example, Richard Phillips Feynman, *The Feynman Lectures on Physics* (Addison Wesley Longman, 1970).

9 E.g. Issac Newton,. "Philosophiae Naturalis", *Principia Mathematica* (1687), and Maxwell, James Clerk, "On Physical Lines of Force", (1861).

10 For a further discussion of the political valence of informatic disequilibrium, see also: Sinnreich, A., Chib, A., & Gilbert, J. (2008). Modeling information equality: Social and media latency effects on information diffusion. *International Journal of Communication, 2*(1): 1-20.

11 Personal InfoClouds is a term introduced to describe the data that person interacts with daily, which accompanies them wherever they go. Sometimes attributed to: Mik Lamming and Mike Flynn. "Forget-me-not: Intimate Computing in Support of Human Memory". In Proceedings of the '94 Symposium on Next Generation Human Interface. Feb, 1994.

12 Jay Stanley and Barry Steinhardt, "Bigger Monster, Weaker Chains, The Growth of an American

Surveillance Society", ACLU Technology and Liberty Program, January 2003. And, Robert O'Harrow, *No Place to Hide: Behind the Scenes of Our Emerging Surveillance Society* (Free Press, 2005).

13 Computer Scientists and Artificial Intelligence researchers have been working on this problem since the dawn of the discipline. Simulations, Games, Time-series analysis, Markov Models, Neural Networks, etc, are all the precursors of predictive behavior modeling. All that is missing is the input data, which we are in the process of remedying.

14 See David Lyon, *Theorizing Surveillance: The Panopticon And Beyond* (Willan Publishing (UK), 2006). E.g. **(1) Synopticon** - The Viewer Society: Michel Foucault's `Panopticon' Revisited MATHIESEN Theoretical Criminology.1997; 1: 215-234 **(2) Ban-opticon -** Bigo, Didier. "The Birth of Ban-opticon : Detention of Foreigners in (il)liberal Regimes"*Paper presented at the annual meeting of the International Studies Association, Hilton Hawaiian Village, Honolulu, Hawaii*, Mar 05, 2005 <http://www.allacademic.com/meta/p70735_index.html> **(3) Sousveilliance -** Steve Mann, Jason Nolan and Barry Wellman. Equalize the relationship of surveillance by gathering more data on yourself than they have. "Sousveillance: Inventing and Using Wearable Computing Devices for Data Collection in Surveillance Environments" in Surveillance and Society. **(4) Dataveillance** – Roger Clarke, "Information Technology and Dataveillance", Commun. ACM 31,5 (May 1988) 498-512. <http://www.rogerclarke.com/DV/CACM88.html> **(5) Nonopticon –** Siva Vidhyanthan, "Naked in the 'Nonopticon' Surveillance and marketing combine to strip away our privacy", The Chronicle Review Volume 54, Issue 23, Page B7 **(6) Netopticon** <http://www.no-org.net/opticon/index.php?m=1> **(7) Participatory Panopticon -** James Cascio, Earth Witness, World changing February 3, 2006, <http://www.worldchanging.com/archives/004069.html>**.** Special thanks to Elijah Saxon for helping to identify these usages.

15 George Orwell, *1984* (New American Library, 1961).

16 Jay Stanley and Barry Steinhardt, "Bigger Monster, Weaker Chains, The Growth of an American

Surveillance Society", ACLU Technology and Liberty Program, January 2003. <http://www.aclu.org/privacy/gen/15162pub20030115.html>

17 For example, Robert O'Harrow, *No Place to Hide: Behind the Scenes of Our Emerging Surveillance Society* (Free Press, 2005).

18 The prefix 'sous' is French for 'from below', to contrast the 'sur'-veillance, from above. Discussed in Mann, S., Nolan, J. & Wellman, B. (2003). Sousveillance: Inventing and Using Wearable Computing Devices for Data Collection in Surveillance Environments. *Surveillance & Society, 1*(3): 331-355.

19 Cory Doctorow, *Little Brother* (Tor Teen, 2008).

20 Jim Dwyer, "The Officer Who Posted Too Much on MySpace," *The New York Times*, March 11, 2009, sec. New York Region, <http://www.nytimes.com/2009/03/11/nyregion/11about.html?_r=1>.

21 David Brin, *The Transparent Society: Will Technology Force Us to Choose Between Privacy and Freedom?,* (Basic Books, 1999).

22 For example, The Open Government Charity, <http://opengovernment.org/>, The Electronic Frontiers Transparency Initiative <http://www.eff.org/issues/transparency>, and the Sunlight Foundation <http://www.sunlightfoundation.com/>.

23 Mary Graham, *Democracy by Disclosure: The Rise of Technopopulism* (Brookings Institution Press, 2002),

24 "F.C.", The Unabomber Manifesto: Industrial Society & Its Future (Jolly Roger Pr, 1995). <http://en.wikisource.org/wiki/Industrial_Society_and_Its_Future>

25 For example, Mark Andrejevic, *iSpy: Surveillance and Power in the Interactive Era* (University Press of Kansas, 2007).

26 Clive Thompson, "The Visible Man: An FBI Target Puts His Whole Life Online", *Wired Magazine*, Issue 15.06,

May 22, 2007 <http://www.wired.com/techbiz/people/magazine/15-06/ps_transparency>.

27 For a fuller technical description of the BioPort, see Jonah Bossewitch "Becoming Your Own Big Brother: A Paradoxical Approach for Retaining Control of Personal Freedom", (2005) available at http://pocketknowledge.tc.columbia.edu/home.php/viewfile/18366

28 <http://projectvrm.net/>

29 Modern corporate astroturfing can be traced back to the work of Bernays on propaganda and marketing. Edward L. Bernays, Manipulating Public Opinion: The Why and the How,", *American Journal of Sociology*, Volume 33, Issue 6 (May 1928) 958-971.

30 <http://www.urbandictionary.com/define.php?term=face+painting> Accessed December 15 2008.

31 Or, more accurately, founded on bullshit, balderdash, and lies. Harry G. Frankfurt, Harry. "On Bullshit." Raritan 6 (1986): 81-100. Irving Goffman's work suggests that while white lies may feel small to the individual, they are socially indispensable, and make civilized society possbile.