THE SELF, IN NUMBERS:

SUBJECTIVITY, THE 'QUANTIFIED SELF,' AND BODIES UNDER CONTROL

A Thesis

by

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ABSTRACT

This thesis explores the effect that modern self-surveillance technologies have on subjectivity and the ways in which bodies are regulated by modern institutional power, while addressing several branches of existing scholarship and criticism on this subject matter. First, a brief overview of a very recent self-surveillance movement (the Quantified Self) is provided, then situated in relation to selected moments of key evolutions in the history of self-tracking practices. In so doing, this thesis charts the increasing formalization of methodology and focus on physicality that has produced modern data-based approaches, while arguing that these new forms in fact create more agency and autonomy for individual users.

In the process, however, these new practice also create a new type of subjectivity: the algorithmic body, which utilizes data gathered about individuals to compile digital representations of them. These 'data doubles,' the thesis shows, are increasingly becoming a requirement of participation in modern society, as evidenced by their important role that they have played in recent years in legal cases and insurance programs. Finally, the thesis closes by showing that the algorithmic body is increasingly becoming favored over the physical one, which creates a situation in which modern subjectivity is increasingly focused on the curation of one's data—a data that makes one's self knowable to the self, but also more portable and easily knowable to others, which allows for far more subtle degrees of influence and control (which are in fact direct extensions of Michel Foucault's conceptions of institutional power).

TABLE OF CONTENTS

Page

ABSTRACT ii

1. INTRODUCTION 1

2. THE QUANTIFICATION OF BODIES 5

3. PARADIGMS OF TRACKING THE SELF AND THE BODY 11

4. ON THE QUESTION OF AGENCY 23

5. THE 'CONSUMERIZATION OF HEALTH' 28

6. ANXIETY AND THE 'ALGORITHMIC BODY' 37

7. CONTROL CULTURE 49

8. CONCLUSION 63

BIBLIOGRAPHY 65

1. INTRODUCTION

"We tolerate the pathologies of quantification—a dry, abstract, mechanical type of knowledge—because the results are so powerful. Numbering things allows tests, comparisons, and experiments. Numbers make problems less resonant emotionally but more tractable intellectually."

- Gary Wolf, "The Data-Driven Life"
(*The New York Times*, 1 May 2010)

"[There are] so many forms in which the sovereignty of the gaze gradually establishes itself -the eye that knows and decides, the eye that governs. The clinic was probably the first attempt to order a science on the exercise and decisions of the gaze […] and classify natural beings according to their visible characters. […] What remained to be discovered, however, were 'structures', that is, forms, spatial arrangements, the number and size of elements: in order to make it possible […] to recognize rapidly [and act upon] any individual…"

- Michel Foucault, "Signs and Cases"
(*The Birth of the Clinic*, 1963, pg. 89)

Let us begin in November of 2014, when an interesting twist occurred in an ordinary and otherwise routine personal injury case making its way through the tort law courts of the city of Calgary, in Canada. At the time, it was widely reported on and quickly became something of a novelty for journalists, court watchers, and other legal scholars. The suit in question was brought by a young woman who had been involved in an injurious accident sometime in 2010. Four years later, she sought to redress the lasting effects of her injuries and their impact on her lifestyle and overall wellbeing.

At the time of her accident, the plaintiff had been a personal trainer and fitness professional. As such, the obvious assumption by her legal team was that she had previously lived a fairly active lifestyle. So in order to prove that their client's activity levels had in fact been negatively impacted by the accident and the resulting injury, her legal team turned to an unlikely witness for expert analysis and testimony.

“[Un]till now we’ve always had to rely on clinical interpretation,” explained the woman’s lawyer, Simon Muller, during an interview with reporters, “[but] now we’re looking at longer periods of time though the course of a day, and we have hard data” (qtd. in Olson par. 6). “[Though] the data has not yet been tested in court reliability," he explained, "I think there is great probative value [in it]” (Littman par. 3). The data in question came from a Fitbit activity tracker that the young woman was wearing—not at the time of the accident, but rather during an ‘assessment period’ leading up to the trial in which the woman’s body and physical activity was actively monitored.

However, Mueller and the rest of the woman’s legal team quickly recognized that the raw data by itself did not necessarily prove anything. In order to have value, it needed a point of reference to provide comparison. So the team enlisted the aid of a third party firm called Vivametrica, a company which bills its services as “providing health data analytics that go beyond the simple recording and reporting provided by wearable device companies” (“homepage” par. 1). In other words, Vivametrica was contracted to study and analyze the plaintiff’s Fitbit data and compare it against the global average of all Fitbit users—or, in the company’s own words, they ‘translate’ it into a ‘measure of health status’. For the plaintiff’s legal team, the goal was to show that their client’s physical activity was, in fact, below average compared to other users. The data, in essence, would provide numeric testimony of the injury’s impact on the woman’s lifestyle.

It was only a few months after the initial swell of media attention, in April, that the University of Richmond’s Peyton Stroud touched on this emerging issue of Fitbit

(and other wearable device) data's place in the courtroom. In a brief blog post for the university's law review, Stroud observed that "legal experts [now] opine that it is just a matter of time for data from these devices to be commonplace in the courtroom becoming a 'black box' for the human body" (par. 4). Indeed, his prediction came true just a few months later, in June, when data from yet another Fitbit activity tracker was used by law enforcement in the city of Lancaster, Pennsylvania to disprove a woman's claim of a random late night assault and burglary (Hill).

I bring up these two circumstantially and geographically different cases in order to consider not the particular circumstances of each situation, but rather the role that data about the body plays as arbiter and evidence in each of them. Namely, that it has begun to function precisely like the 'black box' that Stroud and other legal experts have predicted, one that supposedly provides numerical testimony and verification that is deemed to be trustworthy and credible. It is data that provides proof of certain conditions of the body and elucidates 'truth' of some kind to the observer. And it has become a way for an institution, in this case the court of law, to more intimately understand the physical impacts of a particular situation, be it a long ago accident or a more recent, acute trauma.

In this paper, I want to explore what this particular type of bodily data means for human beings as citizens, subjects, and physical bodies in the information society. If anything, the legal dramas described above provide us with a narrow window into a broader changing paradigm in the relationship between institutions and data about individuals and their bodies. I will argue that in in the face of these transitions, human

beings are increasingly becoming reflections of themselves in digital mirrors, reflections that are divided into increasingly granular parcels of data so as to render the individual more observable, recordable, and ultimately knowable. The result is a subtle, reflexive, and often unseen manipulation of individuals by information technology and its designers (Whitson, "Foucault's Fitbit"), which is increasingly shaping the way in which individual selves are known and constituted as modern subjects.

To do this, I will first provide a brief introduction and summary of modern self-tracking practice and the Quantified Self movement. I will then examine and trace the history of self-tracking practices through three significant methodological evolutions, beginning with the emergence of regimen and dietetics in the Ancient period all the way up to today. This trace will show that, over time, measurement and recording have become increasingly important parts of self-tracking methodology, and that today's metrics and data-oriented projects are in fact a logical conclusion of this centuries long process.

What has changed, however, is that these practices have now become heavily automated through the use of software and algorithms, which utilize understanding of the body to measure, record, and subtly adjust individual behavior so as to bring them in line with cultural and consumerists attitudes. As a result, today's self-tracking practices eerily mirror Gilles Deleuze's notions of the 'dividual' and 'societies of control,' which allow power to act upon individuals in ways more complex and less visible than ever before.

2. THE QUANTIFICATION OF BODIES

Activity trackers (also known as wearables or fitness trackers) are among the many new, 'data-based' products that have emerged in the last few years, alongside the growth of what is often called the 'data economy.' These comprise everything from dedicated hardware-software units like Fitbits and Apple Watches to smartphone apps like Endomodo and Argus. In both of the legal cases described above, the data in question came from Fitbits—fitness trackers which combine hardware and software to track and record a user's body and its performance characteristics. Distance walked, distance run, calories burned, heart rate variations—virtually all observable metrics are of interest. When taken together, this data provides a picture of the user through the frame of 'health' and physical fitness. It allows both users and institutions to make comparisons and inferences, like whether or not below-average activity is indicative of the aftereffects of some kind of trauma or injury, or whether the data supports a person's testimony. Or it can be 'translated' into a signifier of 'health status,' which can then be used to gauge and improve general health and fitness, or correct chronic conditions such as obesity or sedentarism. In regards to the latter, many manufacturers actively advertise their wares as solutions to precisely these kinds of problems, emphasizing in their marketing users that are attractive, slim, and active (Crawford et al).

Now there are many different terms in existence to describe this process of using activity trackers and other wearables to self-regulate and self-monitor. Among the most common are the Quantified Self, self-tracking, and self-surveillance. The first of these is, by far, the most circulated and notable—due in no small part to the marketing push that

accompanied it. The phrase was first coined and popularized in 2007 by Gary Wolf, a writer for the technology-focused *Wired Magazine*. In collaboration with his colleague Kevin Kelley, Wolf not only defined the term and brought it into the popular imagination, but simultaneously founded a new socio-technological movement and company[1] to go along with it. To this day, he remains one of its most vocal supporters.

As Wolf described it, the Quantified Self was a response to "the [growing] implications of a range of new tools that were making self-tracking easier" ("Quantified Self" par. 2), such as the rise of dedicated fitness trackers and smartphone apps that were increasingly supplanting the pedometers and health journals of the past. Automation was, in his view, a significant part of the newer process. "In the past, the methods of quantitative assessment were laborious and arcane. You had to take measurements manually and record them in a log" (par. 2) Wolf wrote, likely referring to Benjamin Franklin's famous 13 Virtues[2] project, which used rudimentary self-designed spreadsheets to track Franklin's progress in the cultivation, development, and refinement of behavioral attributes that he determined to be desirable. But unlike these older written methods, emerging digital and often networked tools offered Wolf and other early adopters (supposedly) new opportunities: they saw the "possibl[ity] to *know oneself*

[1] This company is known as Quantified Self Labs, and it "is a California-based company founded by Gary Wolf and Kevin Kelly that serves the Quantified Self user community worldwide by producing international meetings, conferences and expositions, community forums, web content and services, and a guide to self-tracking tools" ("About").

[2] "It was about this time I conceived the bold and arduous project of arriving at moral perfection. I wished to live without committing any fault at any time; I would conquer all that either natural inclination, custom, or company might lead me into. As I knew, or thought I knew, what was right and wrong, I did not see why I might not always do the one and avoid the other. But I soon found I had undertaken a task of more difficulty than I had imagined" (Franklin 28).

[emphasis added] in a new way" ("Quantified Self" par. 2), invoking the Ancient Greek phrase as a way to tie themselves to the long historical tradition of self-tracking as a means of self-knowledge, moral development, and subjectivity.

In this initial conceptual form laid out by Wolf, the Quantified Self (QS) movement was not something entirely new, but simply the technological answer to and evolution of a centuries-long practice. However, unlike the search for ethics and morality that marked the deployment of Ancient Greek dietetics and Franklin's 13 Virtues, the networked nature of digital technology introduced an entirely new component for the Quantified Self movement: what Wolf called "the macroscope applied to the individual human" ("Quantified Self" par. 3).

At the heart of QS is this idea of the 'macroscopic,' which ties into notions of collaboration, community, and social networking that are so common in the internet-centric information society. Wolf himself defines QS rather explicitly along these lines on his Linkedin profile: "the Quantified Self is a users [*sic*] group for people involved in self-tracking, biometrics, personal genomics, life-logging, and self-experiment, with more than 100 affiliated groups in more than 30 countries." So the key distinction that Wolf draws between traditional self-tracking practice and its modern iterations is this idea of the group or of the wider (often international) community. For modern self-trackers and active QS participants, the self-tracking project is no longer an activity that one carries out in relative isolation, especially now that so many aspects of our lives and the technologies we use are routinely connected to the internet and entangled in web-based services.

This modern take on self-tracking is also distinct from earlier forms in that it incorporates the reporting of results in addition to recording them. There are also new, distinct flavors of study, verification, and experimentation. Whereas Franklin's 13 Virtues project was focused solely on tracking when and which vices he *personally* succumbed to, QS is far more detailed and pervasive in its scope. Full participation in the community and process requires not only the observation and recording of data during/about specific practices, but also the distribution/sharing of this data; its comparison, assessment, verification against the findings of others; and ultimately a conclusion about its validity based on whether or not it is true for different people in more or less the same contexts.

Or, as Wolf himself describes it, it is crowd-sourced scientific project that involves a lot of different people and various types of projects. Describing an average community 'meet-up,' Wolf writes about how:

> People involved in self-tracking projects come and share what they are doing, describe their conclusions, take questions, and ask for help […[The group includes scientists, software developers, health care folks, academics, artists and – most importantly – lots of individual hobbyists and pioneers. ("Quantified Self")

In this passage, Wolf rather subtly lays out the true breadth and scope of the QS movement: it is no longer just about an individual's pursuit of self-knowledge, development, and improvement (or 'care of the self'), but rather the use of self-tracking and data as a means to achieve 'health' and then improve or extend baseline

functionality. Some of the experiments he describes—like "correlating DHA with cognition" and "caffeine consumption with concentration" (par. 4)—actually align closely with the practice of 'biohacking,' which is distinguished from more conventional self-tracker by goals that go beyond simply achieving 'health' and instead put emphasis on improvement or transcending conventional physical limitations (Moshel; Istvan; Michels). Regardless of the group or goal however, the overriding focus is on the observation and study of the body.

Yet even though the body seems to hold a privileged position, sociologist Deborah Lupton has argued that QS remains fundamentally true to older self-tracking traditions. In her view, QS is still fundamentally about the improvement and transformation of the individual, with the exception that it has come to place a greater emphasis on objective observation and metrics. She argues that "it is assumed that the production of such hard/objective data is the best way of assessing and representing the value of one's life and that better 'self-knowledge' will result: tellingly, the QS official website has as its motto 'self-knowledge through numbers' (par. 6). In essence, Lupton is observing a methodological shift in the centuries-long practice of self-tracking: it has become more regimented and formalized, incorporating statistical reasoning while transitioning into a new mutation in which numbers and data have become dominant. The overtly philosophical, spiritual, and moral aspects that marked earlier projects has been replaced by a centralized focus on the physical body and its metrics, and the result is a new and more complex methodology to facilitate this narrowing and concentration.

The body has become the site wherein one learns about the self and where one infers and constructs one's self as a subject.

3. PARADIGMS OF TRACKING THE SELF AND THE BODY

To understand how self-tracking practices have led to the emergence of the Quantified Self, it's necessary to first briefly explore how they have evolved from their earliest formalized variants and become, over time, more explicit and methodical. A helpful starting point is the work of Michel Foucault, who has already explored the relationship between subjectivity and these practices (at least in the form of regimen and dietetics) in works like *The History of Sexuality Volume II: The Use of Pleasure* and the *Hermeneutics of the Subject*. For him, these practices of 'caring for one's self' actually represented a 'technology of the self' that was used to define and constitute the individual subject. But even at that time, the ideal form and focus of these practices was an open question and subject of debate between the period's great thinkers. Among the most important questions was the degree of balance, or privilege, that should be given the to the subject's primary components: the soul and the body. As Foucault shows, the Ancient thinkers recognized that the body was, in essence, the prison of the soul and thus 'care of oneself' should be carried out on two fronts: care for one's intellect and care for one's body operating simultaneously.

Initially, the body-oriented front of these practices was organized by and around a single defining principle: that of moderation, especially in regards to pleasure (of which things like sex and diets were significant components). There was also an emphasis on exercise, in the physical sense, though there was disagreement as to what precise form it should take. Plato, for instance, favored gymnastics (428), which Seneca criticized as "an occupation that is vain in itself, which exhausts the mind and burdens it

with all the weight of the body" (428). Seneca's criticism thus invokes moderation by asserting that gymnastics and exercise inevitably skew the balance away from the mind. The body is thus neither the prison of the soul nor an instrument of it, but instead quite the opposite: it is an equal partner in the constitution of the subject, not just a component of it. The entire practice of dietetics was focused on defining an ideal balance.

However, in this very notion of moderation, specific sets of contrasts emerge to the relationship between body and soul in more contemporary times, at least as described by Foucault in *Discipline & Punish*. Whereas in that text we observed the body being used as a medium for a specific institution (be it juridical, penal, or educational) to act upon the soul, in the Ancient period this action was nowhere near as hierarchized or external. In contrasts, dietetics and regimen were reflexive: the individual, comprised of both his soul and his body, acted upon himself in accordance to principles of moderation. This contrasts that Foucault seems to show is how once individual practices were taken up and remolded by institutions for their own purposes—and by so doing, took over the role of constituting subjects. Yet this only holds true if we look at it very cursorily.

In *Hermeneutics of the Subject*, for instance, Foucault takes particular care to define and explore dietetics by showing how the practice and its forms were debated by the Ancient philosophers. What he does not address, however, is the privileged position of the philosopher in that time period: it was a position that commanded a great deal of respect and even prominence, which granted not only a certain degree of authority, but also a degree of power and influence. So the very ideas that Foucault sees as

transforming and moving away from individuals were never really in their hands to begin with. The core components of how the Ancients saw and practiced the 'care for oneself' emerged from a loosely hierarchized position relative to the individual citizen, a role of mentorship as in the relationship between Socrates and Alcibiades (which Foucault spends quite some time on). The practice of 'caring for oneself' through dietetics and self-tracking was thus a specific kind of practice that one *adopted*, just like one adopts the modern forms espoused by Wolf and other Quantified Self proponents. It was, from its very incept, a much softer form of disciplinary power: one in which an individual partakes not because it is what one "should do" (*Discipline & Punish* 152) but rather because it is what one "wants to do" (*Hermeneutics of the Subject* 88). In other words, it was a practice that was valued and thus strongly encouraged, but one that was nonetheless optional.

Yet at around the same time and within the same intellectual period, Foucault also observed that a new shift in thinking about 'care of the self' was emerging. He described this shift as a "preoccupation [that] was much more 'dietetic' than 'therapeutic': a matter of regimen aimed at regulating an activity that was recognized as being important for health" (*History of Sexuality, Volume 2* 97-8); i.e. diet and a new focus on defining, far more systematically than before, the contours of proper consumption. And though Foucault himself looked at this new medicalization of consumption and health through the lens of pleasure, its implications for the body actually go much farther—because at this precise moment, we are seeing a form of competition between the paradigms of 'want' and 'should' that had previously

dominated. The new mode of thinking was much more prescriptive than its predecessors: it clearly defined what was better and what was worse, and thus formed a loose definition of 'health' for the time period.

This shift in thinking was, however, met with skepticism. Plato, for instance, was deeply suspicious of this new medicalized form of self-tracking for both political and ethical reasons (*History of Sexuality, Volume 2* 100), and in part because this new practice created a system that he and other philosophers saw as 'unnatural.' Foucault himself explored this distinction between dietetics/regimen and 'care of the self' more broadly, writing that:

> Dietetics did represent one modality in medicine, but it did not become an extension of the art of healing until the day when regimen as a way of life became separated from nature; and while it always constituted a necessary accompaniment of medicine, this was simply because one could not treat a person without rectifying the lifestyle that made him sick in the first place. (100)

The tension between the two system was thus born from their interrelationship: 'care of the self' was focused on ethical living, while regimen and dietetics were focused on *healthy* living. Put another way, "regimen was a whole *art of living* [emphasis added]," (101) whereas 'care for the self' was more an *art of being*—in the former, the main focus of the practice undergoes a sharp shift towards the body and care for and maintenance of its physical aspects (i.e. what modern self-tracking practices consider 'health' and thus of interest), in contrast to philosophical principles of moderation and balance (which even modern critics of the Quantified Self, like Miguel Sicart, emphasize and call 'the

good life'[3] or 'ethics'[4]). It is also striking that Plato was a supporter of gymnastics as a tools for 'care of the self,' but drew a line in the sand when it came to regimen—which went beyond just the mere notion of exercise and extended into diet, sleep, and other lifestyle practices.

It went so deep, in fact, that when broken down into its various components, regimen began to look like a real daily routine that provides not just a framework for 'care,' but for the wholesale scheduling and organization of one's life. Many of the activities defined, in fact, eerily predict the very kinds of metrics that modern activity trackers emphasize: those related to observable and recordable behavioral practices. Consider, for example, the amount of specificity and detail in the regimen espoused by the philosopher Diocles, whose plan:

> […] follows the course of an ordinary day, moment by moment, from waking up on through to the evening meal and the onset of sleep, with attention given along the way to the very first exercises, the ablutions and massagings of the body and the head, the walks, the private activities and the gymnasium, lunch, napping, and another round of walking and gymnasium activities, oiling and massage, dinner. (101-2)

The focus here is almost wholly body-oriented. At no point is the soul referred to or even mentioned. Exercise is carried out frequently and "the attention given along the way" is

[3] "It is not enough to track, and make sure that I perform these activities—the good life is not about the results, but the process. A good life is a lived life, not an accounted one" (Sicart 228).

[4] "…these technologies do not help or contribute to development of a good life, as they do not require us to develop or practice moral values—just to enact them, to perform them as mechanical repetition of tasks" (Sicart 234).

focused on physical attributes and activities—and not unlike the sort of attention carried out by modern self-trackers, who focus on exercises, consumption, sleep, and other observable activity levels.

"Attention given' is, in many respects, a form of measurement. And measurement is, for our purposes, the first major evolution of self-tracking practice. But even in the Ancient period, there were some argued that measurement itself was implicit to the process. "Regimen needed to establish a measure: 'even a pig would know,' says one of the interlocutors in the Platonic dialogue *The Lovers*: 'in everything connected with the body,' what is useful is 'the right measure'" (102). Initially however, measurement was not the primary focus for the period's thinkers—it came along as a result of the practices and proscriptions becoming more and more formalized by various thinkers, such as Plato and Dicoles. Later on, the measurement of bodies would take on even great importance in the industrialized society, because not only would it feature in defining the appropriate amount of punishment to be inflicted (*Discipline & Punish* 33, 74, 95), it would also factor into how the bodies themselves were to be understood, governed, and otherwise regulated (149, 151). But measurement also becomes extended beyond application to a singular body, transforming in the process into a technology that "measures in quantitative terms and hierarchizes in terms of value the abilities, the level, the 'nature' of individuals" (183). Measurement becomes a way to order and observe human beings in the 'macroscope,' which was useful for the fast-growing and increasingly complex bureaucracy. Measurement as a methodology allowed self-tracking

practices to operate on two levels: the individual who measures him or herself and the external force that defines or establishes measures (often for comparative purposes).

Yet, contrary to the complications I have highlighted thus far, it is important not to see dietetics and regimen as completely separate from prior notions of 'care of the self' as a lifestyle: 'care for the self' is in fact foundational to these practices as well. Rather, it is useful to think of the practices as extensions of 'care of the self' that have been more specifically defined and formalized in the process. Foucault himself observed that, at the time, "the possibility of a danger in the very practice of 'diet' was readily acknowledged, for if the aim of regimen was to prevent excesses, one might exaggerate the importance one lent to it and the autonomy one permitted it to assume. This risk was generally perceived as having two forms" (*History of Sexuality, Volume 2* 104). The first form mirrors the critique of hard exercise that Foucault finds in Seneca, "what might be called 'athletic' excess; this was due to repeated workouts that overdeveloped the body and ended by making the soul sluggish" (104)[5] while the second is framed slightly differently to address "the danger of what could be called 'valetudinary' excess; that is, the constant vigilance that one applied to one's body, one's health, to the least ailment" (104)[6]. So even at a cursory glance, there is clearly a common thread between these two: in the former there is concern with overdevelopment while the latter worries about

[5] Ironically enough, a very similar critique is made by some modern scholars. Miguel Sicart, for instance, asserts that the Quantified Self's emphasis on the physical body and its metrics overrides enjoyment of healthful practices, and thus encourages repetitive (rather than habit-forming) behavior. Chris Till, meanwhile, argues that health-focused self-tracking has transformed exercise into a form of labor.

[6] Again, this is a criticism mirrored by some popular culture writers and pundits. The two primary threads are self-tracking practices as narcissism and self-quantification as neurotic behavior.

overemphasis. In both, the source of anxiety is the surface on the body and to what extent it is privileged—precisely the same concerns that are mirrored by today's critics of the Quantified Self's practitioners and participants, who are often described as obsessive, neurotic, and narcissistic.

However, the very fact that regimen, on one hand, outlined practices in very specific ways while, simultaneously, cautioning against bodily excesses produces a strange effect: in order to be healthy, we must concentrate on the body, but we must be careful not to concentrate on it *too much*. Is this not the very same moderation that we have already discussed? If we hold this to be true—that regimen is simply an extension, formalization, and schematization of earlier practices of 'caring for oneself'—then what is really at stake, and what is changed, in relation to the body in the transition between the two? The answer is that it makes a practice ('care of the self') more portable, in the sense that more specific instructions allowed new practitioners to more easily adopt them. Foucault himself points to this when he writes that "the usefulness of a regimen lay precisely in the possibility it gave individuals to face different situations" (105), i.e. regimen allows individuals to be adaptable in the face of both external (environment) and internal (illness) conditions. It is, in contrast to 'care of the self' in the looser, philosophical sense, representative of a new, more structured, and infinitely deployable 'technology of the self'—a technology that is, by its very nature, easier to adopt and participate in than earlier forms of the very same practice.

Now I call attention to these practices in order to shine a light upon a contradictory aspect of the 'self' in the Ancient period, wherein "theoretically, the

culture is soul-oriented, but all the concerns of the body take on a huge importance" ("Technologies of the Self" 29). At the time, the modes of ethics and subject constitution privileged the soul are the thing upon which they *wanted to act*, while simultaneously realizing that to do so required utilizing the medium of the body. The result, as I have shown, was a movement towards more explicit formalization and medicalization of 'care of the self' into dietetics and regimen, but there was still a clear line between those practices and traditional medicines[7]. The distinctions was fundamentally a difference in targeting: one was specifically aimed at the body (medicine) while the other merely used the body to get at the soul (regimen). Thus, for Foucault, regimen at the time could be defined explicitly as "a whole manner of forming oneself as a subject who had the proper, necessary, and sufficient concern for his body. A concern that permeated everyday life, making the major or common activities of existence a matter both of health and of ethics ("Technologies of the Self" 108).

So not only was regimen an 'art of living' (health), it was also an art of constituting oneself as a particular kind of subject (ethics): one who has the proper and necessary concern for his body, through which he could act upon—and ultimately shape—his own soul. Regimen and dietetics were thus about a more strict organization of life through surveillance of the body (*History of Sexuality, Volume 3* 103), "an *intensification,* much more than a *radical change* [emphasis added]" (103). And o it seems to me that regimen, as a manner by which an individual forms oneself as a

[7] "Whereas medications and operations acted upon the body, and the body submitted to that action, regimen addressed itself to the soul, and inculcated principles in the soul" ("Technologies of the Self" 107).

subject, is not altogether different from the institutionalized subjection produced by the modern disciplinary institutions introduced in *Discipline & Punish*. The technology, at its core, is the same. By utilizing the body and proscribing certain exercises and activities for it, the end result is the same. They are both, in essence, power deployed upon the body as a means of getting at the soul. Regimen and discipline are both, fundamentally, *technologies of the soul*. This is a similarity that has, over time, allowed them to move closer and closer to one another, so much so that now the boundaries and distinction between the two are unclear and often messy. Foucault perhaps captures it best when he write that "the soul is the effect and instrument of a political anatomy" (*Discipline & Punish* 30), indicating that regardless of whether the application is regimen or discipline, the politics of identity and notions of what constitutes an 'ideal subject' play into the practice anyway.

Nowhere do we see this more clearly than in the next major evolution of self-tracking practice: Benjamin Franklin's 13 Virtues project. Designed in order to 'arriv[e] at moral perfection" (28), the system was organized around a set of thirteen attributes that Franklin associated with respectability, morality, and general 'good character.' In action, the project involved Franklin actively observing his own behavior (physical actions) while also striving to regulate and govern them as much as possible (intentionality). Said attributes were divided roughly equally along lines of behavior and physicality: temperance, industry, moderation, cleanliness, and chastity (at least as described) are narrowly focused on specific bodily attributes and actions, while silence, order, resolution, frugality, sincerity, justice, tranquility, and humility are more focused

on general behavioral attributes. The distinction between his system and the older practices of dietetics and regimen was that he designed spreadsheets in order to track his progress, a specific and formalized methodology[8] that recorded "by a little black spot, every fault I found upon examination to have been committed respecting that virtue upon that day" (38). The project thus became one not just focused on a whole 'art of living,' but rather a process (complete with built-in mechanisms and strategies) to actively define, shape, and establish specific parameters of ideal behavior—which, we must note, was heavily influenced by the time period's conceptions of morality and 'good character.'

In describing the creative process behind the project, Franklin noted how "in the various enumerations of the moral virtues I met in my reading, I found the catalogue [of virtues] more or less numerous, as different writers included more or fewer ideas under the same name" (38). So not only did Franklin actively research the virtues that he would eventually incorporate into his system (adopt), but he struggled with the challenge of establishing appropriate definitions (adapt). "Temperance, for example, was by some confined to eating and drinking, while by others it was extended to mean the moderating every other pleasure, appetite, inclination, or passion, bodily or mental, even to our avarice and ambition" (38), which left Franklin to define for himself what specific criteria would constitute his interpretation of temperance—a definition that was heavily shaped by outside influence. If anything, this challenge of definition that Franklin faced

[8] Franklin, in his autobiography, goes into significant detail about the project as it was conceived and carried out—even going so far as to overview and define the relationships of the virtues to one another. In particular, he writes how he "determined to give a week's strict attention to each of the virtues successively" (39) in order to develop habits in a slow and progressive way: one at a time, week by week, until all were finally developed (supposedly).

can traces its roots right back to the earliest debates about the proper form of regimen and dietetics among the philosophers of the Greco-Roman period, and opens the door to even more formalized methodologies of practice to emerge, such as today's highly organized, measured, and recorded Quantified Self.

4. ON THE QUESTION OF AGENCY

For individual users, modern self-tracking technologies primarily emphasize self-improvement and development through self-surveillance (Whitson, "Foucault's Fitbit" 340), but self-governance and "a new care of the self based on data" (340) are a part of it as well. In fact, the individual's participation in the process is also an outward display of these activities: others may see the widely-recognized symbols of this process (wearables, apps, etc.) and recognize that the individual wants to 'care,' to 'improve,' and to 'know.' On a subtle level, self-tracking is not only a process of self-improvement, but also a form of social signaling: the presence of a fitness tracker worn on the wrist suggests that the person is active and, if not already, at least making progress towards being fit and healthy.

Now there are some critics of the Quantified Self who, in various ways, see participation as a loss of agency and control—whether because it emerges from narcissism or external stimuli, compulsive tendencies, or obsessive impulses. I would assert that, in fact, the chronology of practices that I discussed above provides a clear line of disagreement. If anything, the ongoing debate and uncertainty that has marred self-tracking practices since their earliest days provides evidence for just how much agency is involved in the conception of these practices—Benjamin Franklin, after all, built his 13 Virtues project from scratch and put considerable thought into each category. But the design and conception of a project, some critics would no doubt argue, does not constitute autonomy within the actual project. To this I would counter that regardless of what stage a user is in the process, agency is implicit: the user must *decide* to participate,

be it for reasons in direct response to social pressures (to improve health or reduce obesity, for instance) or of their own making (to improve general health or overall performance).

Much like the image of the soldier that Michel Foucault uses in *Discipline &* Punish, the individual body can be treated like an object or viewed as an automaton. But it is never actually one, even when being overtly molded by directed disciplinary power. Because within the hierarchized and regimented structure of any military, the soldier occupies two positions: he is both the object which is crafted, deployed, and manipulated by the violent calculus of warfare, and a subject of both himself and the institution. All of the discipline imposed on the soldier's body constitutes it as a 'useful body,' but also as a 'good soldier.' This good soldier is thus only good in relation to how much he embodies the habits and behaviors that constitute him as such; i.e. he must have an active part in his own creation. He is not solely acted upon by discipline from above, but also interpellated as part of both the military's culture and hierarchal structure. The same is true, in my view, of the individual self-tracker.

Irrespective of whether or not the user makes specific changes as a reaction to the data, the very act of acquiring the data requires that the user consciously take part (by remembering to wear their fitness tracker, for instance, or regularly uploading gathered data to an app). Simply put, the individual is always, in some way or another, directly involved and making decisions about the day-to-day formulations of the project. And as we have seen throughout its history, self-tracking practice has always been about two things and both require agency. The first is a type of personal discipline in which one

regulates the self and one's impulses. The second is a reaction to social beliefs and pressure—whether they be overt or subtle—about what constitutes a good person/subject. Traditionally, as we have seen, morality and health (or the self and the body) have existed in a moderated or at least uneasy balance. But with the emergence of the Quantified Self, the moral component has (seemingly) been almost wholly transplanted by the body and concerns with its status and performance. The methodology has evolved as well, from the defined routines of regimen and dietetics (that, as far as we know, were embodied rather than recorded) to the visualization paradigm deployed by Franklin, and finally into the very fine grain and automated tracking enabled by modern technologies. And with the advent of ever more details capabilities of measurement recording, the process has evolved again into one where "measurements feed into circuits of reproduction, making performances visible" (Whitson, "Gaming the Quantified Self" 167), which opens up an entirely new mechanism of inquiry: direct comparison of measurement against one's self and other individuals. But not only that, "this monitoring and quantification becomes a connective tissue essential for the reproduction of everyday practice" (167), which allows individuals to actively work towards developing habits.

These mechanisms are not new. They have simply become easier. In Franklin's project, for instance, his spreadsheets allowed him to see how often he resisted or succumbed to the vices defined by his 13 Virtues. In the end, however, he was as interested in patterns (which vices proved the most tempting and why) as he was in practice (what choices he made, or could make, that would push him towards his

ultimate goal). At the end, Franklin sought "to acquire the *habitude* [emphasis added] of all these virtues" (38), but in order to do so, he realized that he had to systemize and schematize the entire process. "I judged it would be well not to distract my attention by attempting the whole at once, but to fix it on one of them at a time" (38), he wrote, recognizing the complexity (and arguably futility) of the task should he try to do everything at once. "Now [in contrast] much of the data-gathering can be automated, and the record-keeping and analysis can be delegated" (Wolf, "Quantified Self") to create an autonomous, detailed, and incredibly granular 'circuit' in which data is continuously measured, recorded, and observed. The user thus does not have to be nearly as attentive to detail as Franklin was, while also being capable of making progress along multiple and often disparate fronts, and thus overcome the limitation of willpower that Franklin factored into his own project. They no longer need to resign themselves to focusing on one or relatively few available avenues of improvement.

The end result is actually a system that requires *less discipline* and enables *more* agency for the individual user because, after opting in, the actual tracking requires far less dedication, mindfulness, and overall attentiveness—which serves to reduce the mental strain of trying to constantly record and measure one's behaviors. Thus, the number of behaviors that can be practiced and recorded at any given time actually increases, since the mental strain has been taken over by wearable sensors and the accompanying software. "In this sense, it's easy to see the appeal of self-tracking as *technologies of motivation* that can be deployed" (Carrigan, "Governmentality" par. 11) quickly and with relative ease, which serves then as a way to, at least in part, address the

issue of limited agency of a different kind: on where the individual lacks the drive, motivation, or desire to partake in 'care of the self' to begin with. Thus, these new tools actually open up an entirely new realm of possibility, allowing self-tracking projects to be undertaken by people who were previously thought to lack the necessary drive, grit, and discipline—which also has the additional benefit of opening up more and more people to governance and marketing. In the end, these tools do not limit autonomy or agency, but actively encourage in order to produce more data and drive the adoption of behaviors that encourage the desire in users for ever more accurate self-tracking tools.

5. THE 'CONSUMERIZATION OF HEALTH'

Yet this seeming good—that more people can participate—is precisely where the internal contradictions of modern self-tracking begin to show themselves (and in part because there is so much more ease, and thus less investment, now required). When Foucault discussed regimen and dietetics in the Ancient Period, he brought to light a similar internal contradiction: that the overall shape of 'care of the self' was, to a degree, externally constructed by the authoritative voice of the period's great thinkers. So the question that we face is really a 'chicken or the egg' kind of problem: does the desire to 'care for the self' ever really begin with the individual, and to what extent is the form in which it is deployed dictated by external ideas and circumstances?

For scholars, these questions have led to two primary areas of focus: why one begins a routine of self-observation and tracking (where much research has already been done), but also how and why individuals maintain long term projects (a current and ongoing question). And with the relative ease of entry and participation in modern QS, we inevitably have to ask about the purpose. Why? Why take part in a QS project at all? What stimulus leads to participation and what forces contribute to long term upkeep and maintenance?

This question of 'why' has been (and arguably continues to be) a subject of much debate for a number of critics, be they in popular culture or academia. But for illustrative purposes, I want to approach this question theoretically and operate (for the most part) outside of this debate, at least for the moment. To begin answering this question, we must first draw a necessary distinction: there are, in fact, two modes of motivation

operating on an individual at any given moment. The first is internal, which we can define as the desire to do something or achieve some specific outcome. The second is external, or the requirement or expectation that something should be done by some external pressure (whether society at large, an institution, or an individual). However, as discussed above, these two drivers are not mutually exclusive.

Let's begin with the most obvious focus and impetus for modern self-quantification: the body and its physical condition. The majority of current tools (be they Fitbits or apps for Apple Watches) market their capabilities, for the most part, in relation to two distinct concepts: health and fitness. But what is 'health' and what is 'fitness?' Both operate, in many respects, on two interconnected levels: objective and subjective. Objective health and fitness are things that most of us would consider obvious: not being sick, obese, or otherwise different from the baseline medical standard. The subjective, however, is where things begin to get interesting and which can, as some have argued, also shape the objective.

Being 'sick', for instance, is objective as noted above, but is only so because it is an obvious outward sign and signal to others that one's health is lacking. In most cases, though, the individual is not blamed or held responsible for his or her sickness. Being ill is generally attributed to outside situations and circumstances—though, we must note, that blame can (and sometimes is) attributed to people that put themselves in particular situations (such as, more recently, travelling to Ebola stricken countries in the middle of an epidemic). Sickness, however, is usually treated as a wholly physical phenomenon: it is the body impacted by some infection, virus, or contagion that is distinct and outside

the direct control of the afflicted individual. In fact, treatment of illness often takes the form (as Foucault observes in *The Birth of the Clinic)* of a detached gaze that assesses, diagnoses, and then prescribes treatment based upon a systems-thinking perspective in which the afflicted individual is not a person, per se, but rather a collection of constituent organs, parts, and biological mechanisms. What is treated thus is not a person, but a system.

Now let us consider, in contrast, the issue of obesity: especially in light of the fact that our society treats obesity not as a disease (which medical science argues it sometimes is), but a condition that results from individual choices, and which is taken to be symptomatic of general weakness of character, poor self-control, and laziness. However, we must remember that there was a time when this perspective was quite a bit different: in the Middle Ages, for instance. Georges Vigarello perhaps, summarized it best: "the words used to 'describe' beautiful women in the oldest medieval tales are entirely clear on the matter. Each one is 'fat, white, and tender' or 'fat, tender, and beautiful,' […] [and] the words are the same for describing resplendent health" (3-4). In his book, *The Metamorphoses of Fat*, Vigarello traces the history of obesity from its privileging in medieval times (a time of scarcity) to its view as decadent and immoral (in times of plenty), and the ways in which views of the obese transitioned from respect to satire and ultimately, in modern times, to outright disdain and discrimination.

Susan Bordo touches on this subject as well in the chapter "Reading the Slender Body" of her monograph, *Unbearable Weight.* She observes how, "in the late nineteenth century, by contrast, the practices of body management begin to be middle-class

preoccupations, and concern with diet becomes attached to the pursuit of an idealized physical weight or shape; it becomes a project in service of *body* rather than soul [emphasis added]" (185). But even though Vigarello and Bordo's works focus on relatively recent attitudes and historical periods, concern with weight and diet show up even in Foucault's later works, especially in relationship to regimen and dietetics. In "Foucault and the Ethics of Eating," Chloë Taylor took a second look at this portion of his work and argued that diet functioned as a form of self-constitution ('you are what you eat') in the Ancient period about as much as it does today. In particular, she notes how "it is significant to Foucault that food was once the focus of a complex set of restrictions and inspired a greater discursive interest [dietetics] than did sexual activity" (72), showing how much more consumption was to ethical living than physical pleasure. In this respect, Taylor's argument shows that modern self-tracking practice does not deviate radically from dietetics, at least in this particular area. After all, modern QS practitioners have a wide range of apps and products to track their caloric intake, as well as food consumption down to the specific types and portion size of items.

But this focus on food exists today as a result of slightly different motivations: in the Ancient period and dietetics, obesity was not a significant concern. Today, however, it is—primarily because it has become a potent outward symbol of not just unhealthiness, but personal character as well. And as we have seen, self-tracking practice has historically always been bound up not just with the body, but the overall character of the self (i.e. ethics and morality). So for Bordo, society's obsession with obesity is directly related to its signifying power (as well as those aesthetics that are deemed

'desirable'). For her, "the moral […] coding of the fat/slender body in terms of its capacity for self-containment and the control of impulse and desire represents the culmination of a developing historical change in the social symbolism of body weight and size" (191), which is precisely the change that Vigarello tracked, and whose origins Taylor saw in Foucault's interest in the regimentation and regulation of diets in the Ancient period. What Bordo speaks to explicitly is also the desire, born of social pressure, to move (by whatever means, including self-tracking) from a state of perceived 'unhealthiness' (obesity) into one of 'health' (fitness) that is symbolized by the slender body. But what we conceive of as 'health' has taken on a very specific form in recent decades: 'health' is increasingly being represented not just by the slender body, but by the athletic, toned, and muscular one. The pressure for 'health' is thus an external motivator: "[obesity] signals a lack of discipline, loss of control and laziness" (Sebag-Montefiore par. 19), as well as an inability to conform. To be 'healthy' thus signals the opposite and commands, by extension, more respectability and social capital.

Yet it is not just obesity that has come to contain and represent these varying social pressures and ideas: "as recent political debates in the United States have demonstrated, 'health' is a term replete with value judgments, hierarchies, and blind assumptions that speak as much about power and privilege as they do about well-being" (Metzl 1-2). 'Health' itself is discursive—consider how much debate exists arguing the health benefits of certain food or diets, but also certain types of physical activity and exercise (something that was the case even with Ancient thinkers like Senenca). The very notion of it is constantly in flux and, in some respects, is not always explicitly

concerned with the condition of the body[9] (though the condition of the body speaks about it the loudest). Or, in other words: "health is a desired state, but also a proscribed state and an ideological position […] the result [of which] explicitly justifies particular corporeal types and practices" (Metzl 2-3), among which we can easily place self-tracking, along with the dramatic rise in popularity in recent years of various extreme exercise movements (like Crossfit or the Spartan Race) and dieting regimens (like Weight Watchers or Atkins).

Can we really be surprised then that the very same proponents, manufacturers, and media outlets that have sold us certain these conceptions of health are now selling us the very tools and activity trackers that offer easy-to-use, adaptive, and metrics-based solutions for them? In fact, how we think and talk about them today is not all that different from how we have reacted to similar technologies in the past. Take the most obvious problem, obesity, which can be addressed by modifying both an individual's diet and sedentary lifestyle. "One of today's hottest exercise devices fits in your pocket […], [it] costs about $25 and is so simple *a child can use it* [emphasis added]" (Krucoff par. 1-2), says a 1999 article, subtly equating the obese and other inactive people with children. The article was published in response to rising sales of electronic pedometers and alongside increasingly dire warnings about America's obesity crisis. Arguably, this has not changed all that much in subsequent years, since "there is no shortage of concern about the imagined threat of fatness: headlines trumpet its alleged consequences every

[9] I refer here to public debate about mental health, as well as those activities (such as 'detoxing') which describe themselves as 'healthy' but have no noticeable impact on the external appearance of the individual body.

day" Kathleen Lebesco asserts in "Fat Panic and the New Morality" (73). In fact, some critics have argued that the obesity epidemic is more of a media construction than an actual crisis. Lauren Berlant, for instance, asserts as much in her *Against Health* chapter, "Risky Bigness." She writes that the "one thing that the obesity epidemic is, is a media effect […] to justify new governmental and medical oversight on the populations whose appetites are out of control (a conventional view of the masses, subalterns, the sexual, and so on)" (31). In this respect, the obesity epidemic is, to return once again to Foucault, a kind of biopolitical panic in the vein of the nineteenth century bourgeoisie's concern about proletariat promiscuity and sexual practice. Quite telling, the public weight scale became something of a fad in the nineteenth century, during which time fat became subject to increasing scrutiny and ridicule. Often, public weight scales "came with inscriptions, such as the one […] from the late 1880s in Paris, which offers the homily: 'He who often weighs himself knows himself well. He who knows himself well lives well' (Crawford et. al 486), which bears a striking similarities to the rhetoric of modern QS supporters (that self-knowledge in the form of numbers leads to a healthier life). And since the nineteenth century and the dawn of the millennium, the market for wearable fitness trackers has only continued to grow, with some observers suggested that "this quick uptake of fitness bands shows that the wearables market 'is really about the consumerization of health'" (Levine par. 4).

Now this consumerization is a troubling phenomenon on many levels, but primarily because it implies that 'health' is something that can be easily bought and is thus partly attributable to economics and an individual's market capital (which by

logical extensions suggests that those living in poverty are unable to be healthy). In this vein, Jonathon M. Metzl's introduction to *Against Health* notes that a "growing numbers of practitioners from within medicine and public health, as well as members of patient activist groups, critique health as a problematically consumerist rhetoric that reflects social and economic norms under the guise of scientific information" (6), which is obviously problematic in that it transforms 'health' into a notion used to stimulate economic growth and market consumption.

This 'consumerization of health' also engenders a narrower expectation among users about the relationship between themselves and the app or the tracker. Simply put, the expectation is for knowledge to move in one direction, with the ultimate end goal of 'health' being produced at some point in the foreseeable future. So, the logic goes, health results from the information collected by the tracker and the direction, advice, and guidance that it provides the user. The user's role is simply to internalize, accept, and comply with its instruction. In this way, 'health' is not only about consumption but also about a kind of discipline—albeit a subtle, automated discipline that is bought into via consumerist impulses. Modern 'health,' after all, is a constructed, discursive concept formed partly by a culture of advertising. The term 'health' itself exists within a discursive trinity of consumerization, morality, and self-discipline. Or, as the surveillance scholar Jennifer Poudrier sees it:

> Health discourse is disciplinary and moralizing to the extent that it defines categories of healthy and unhealthy behavior. These determinants of healthy and unhealthy behavior tend to correspond intimately with

> moral concepts of good and bad conduct, as well as virtuous and immoral individuals or communities. […] [Thus] subjectivities are constituted through the authoritative and moral categories of healthy, unhealthy, diseased, not-diseased, good, bad or simply "at risk." As subjects are interpellated or hailed by these health categories, individuals and groups of individuals come to participate in their own self-surveillance. (118)

Essentially, Poudrier asserts that 'health' as a category now forms one of the mechanisms by which modern subjects are constituted, as well as one of the categories by which they are judged to be ethical or unethical. Interpellation and self-surveillance play critical roles here because they speak not only to health monitoring and observation (through such things as health journals or self-examinations for tumors) but also the use of tools like self-trackers to move into—or remain in—certain categories (such as 'fit' or 'muscular') that become core components of how individuals think of themselves as subjects.

6. ANXIETY AND THE 'ALGORITHMIC BODY'

There are some who would argue that compliance with consumerization and automation is itself symptomatic of a loss of agency. However, I do not quite see it that way. Instead, I see it as a form of *lesser* agency exercised in a passive form: by taking part in the self-tracking project, the user is in fact conscious of and actively participating in simultaneous forms of action. First and foremost is compliance itself, which requires consciousness (in the form of recognition of instructions) and action (in the form of following instructions). It seems to me that the situation (again) mirrors that of Foucault's soldier, who is

> […] something that can be made; out of a formless clay, [or] an inapt body […] [whose] posture is gradually corrected; a calculated constraint runs slowly through each part of the body, mastering it, making it pliable, ready at all times, turning silently into the automatism of habit; in short, one has 'got rid of the peasant' and given him 'the air of a soldier.' (135)

For the sake of argument, substitute the word 'peasant' above with the word 'fat' and the word 'soldier' with 'fitness.' Does the underlying proposition of the passage change all that radically or shift itself significantly? I would assert that it does not, but the very mechanisms are the same when they are applied to the obese or otherwise 'unhealthy': they exist, prior to intervention by self-tracking, as an 'inapt body' that is 'formless' in so far as it does not "wear, fetishize, or aspire to the glossy trappings of the health of others" (Metzl 3). This has led to considerable pushback and rhetoric against the molding of bodies by Quantified Self technologies. The anxieties reflected are similar:

worries that those who do not conform are seen as undisciplined and thus necessary to manage. Consider, for instance, one particularly vivid depiction of this that comes to us courtesy of Whitney Boesel, a fellow at Harvard's Berkman Center for Internet & Society (which researches technology and privacy issues). In reflecting on her own personal experience as a participant in the QS community, Boesel observes how:

> … a lot of people have heard the word "quantified" cozy up to the word "self" in ways that make them feel angry, uncomfortable, or threatened. They don't at all like what those four syllables sometimes seem to represent, and with good reason: the idea of a "quantified self" can stir images of big data, data mining, surveillance, loss of privacy, loss of agency, mindless fetishization of technology, even utter dehumanization. ("Quantified Self Now" par. 1-2)

In fact, one could theoretically argue that it is precisely these kinds of concerns that have—at least in recent years—begun to function as a demand-side check against the previously unbridled growth of the self-surveillance technology market. After all, recent rates of long-term user retention and new, short-term adoption are rather low, especially in comparison to other popular technologies. One study in 2014 found that sustained use of fitness trackers can decline as much as 50% in the first two years (Ledger and McCaffrey 4). This same study also reported results from 2013 that found only 1 in 10 Americans over 18 actually owned—but not necessarily used—one (2). Though there are, of course, other factors at play and we cannot wholly attribute these numbers to anxieties about quantification, the fact that self-tracking technologies continue to have

such low market saturation after years of steady growth (as well as media discussion and attention) does say something about the reluctance with which huge swaths of the population see this movement.

Even Gary Wolf himself is careful not to disregard these concerns outright. If anything, he even seems somewhat sympathetic to them. This is no doubt a strategic move and an intentional rhetoric, because in order to sell his 'product' he has to adjust the way that his readers—who, ideally, will become his customers—view the project he is proposing. To do this, Wolf plays right into these worries by writing about how:

> All this might once have seemed like a nightmare, the kind of thing that would be proposed by Thomas Gradgrind, the schoolmaster in Charles Dickens' Hard Times, who barks at his students by number—"Girl number twenty!"—and blasts every person he meets with unsolicited facts and statistics. Quantitative analysis by its very nature seems remorseless and inhuman. Numbers may be useful for epidemiologists and *insurance companies* [emphasis added], school systems, the military, and sociology professors, but what have they to do with the fabric of our personal lives? To be turned from warm flesh into cold arithmetic—what a terrible thing. As the hero of the cult TV series The Prisoner cried, "I am not a number! I am a free man!" ("Know Thyself" par. 3).

In this passage, what comes across as especially striking is not just the descriptive, arguably literary, means by which Wolf speaks to these anxieties, even as he subtly frames them as an old and outmoded way of thinking. "All this might have once seemed

like a nightmare," he writes, suggesting that this view is not just dated, but arguably 'dystopic' and separated from reality—a rhetorical move that is emphasized by his fictional examples. And though he does comment upon the perceived "cold[ness]" and "inhuman[ness]" of the process, he does so primarily to implicate scientists (epidemiologists and sociologists) and institutions (insurance companies, school systems, the military), not the technology itself or its users. The blame for all the fear and distorted views is put at the feet of systems and traditional scapegoats, not the technology itself.

His specific references to *The Prisoner* and *Hard Times* too are also striking because, in many respects, both examples are allusions to an older paradigm of thinking about the body—one which Tulane University's Yeeshan Yang references as she posits and defines its successor, the 'algorithmic body':

> Throughout history, scientific trends have had a profound effect on perceptions of the self and body. In the second half of the nineteenth century, for instance, a mechanistic [emphasis added] rather than an algorithmic view of the body was on the rise. This understanding of the body flourished alongside the rapid proliferation of mechanical technologies in the form of industrial machinery, transportation, and medical knowledge. Notions of the body began to focus on issues of efficiency, fatigue, and the cycles of a closed system. (81)

The distinction between the mechanistic and the algorithmic is, in essence, a paradigm shift. Under the mechanistic model, the body was treated as a machine, a closed system

to be maintained—in fact, this view was prevalent even into the later years of the twentieth century, as evidenced by a National Health Services advertisement that appeared in *The Guardian* as late as 1993 (Macauley and Gordo-Lopez 439), and was the overriding view that Foucault critiqued in *The Birth of the Clinic*. More recently, however, the rising influence of statistics, data-mining, and data science (and 'big data' in general) has reconfigured this view into a new interpretation in which the body is not a machine, not a closed system, but rather an open environment that is constantly adapting and reacting, producing information, and thus an "object of surveillance and monitoring for the purpose of intervention" (Yang 81). It is a body that cannot be understood in categorically mechanistic terms because it is fundamentally irreducible—unlike the body of thought of as a machine, the new body is thought of as a field of knowledge that is slowly uncovered. Because of this, modern thinking about the body no longer reduces it to a system of interrelated parts, but rather a host of processes that can be understood (or at least inferred) through data. In this way, modern self-tracking practice is an "ongoing project of building oneself [or being built] up through data" (Yang 80), as opposed to be defined and understood solely as an organic machine.

Wolf is also working to subvert and move beyond these entrenched, mechanistic views of the body in favor of this new paradigm—one that treats the body as algorithmic, because this implies control and improvement through self-directed (rather than institutional) surveillance, assessment, and intervention. He is arguing, in essence, against the idea of industrial age power—which is very similar, if not the same, as the schematized, regimented, and measured power that Foucault explores in *Discipline &*

Punish. Because unlike the power deployed by prisons, schools, clinics, or other institutions, Wolf and other members of the QS community see data-based self-tracking as an intervention that is freely entered into and carried out autonomously by willful individuals. Unlike their critics, QS practitioners fundamentally see their practice as liberating, which is why they often compare criticism to outdated thinking and overly nightmarish anxieties about political, economic, or scientific oppression. For them, technology fundamentally enables and creates new freedoms. However, because of this view, they often ignore—or choose to ignore—one of the primary criticism leveled against them: that just because data enables new methods of self-knowledge and subjectivity does not necessarily mean the individuals are any more free than they ever were.

Often, this vein of criticism focuses not just on individual data, but 'big data'—which in its most essential form is a type of digital vortex that produces increasingly vast volumes of disparate information. In 1977, Langdon Winner coined the term 'function creep' which many surveillance scholars have argued is a powerful tool for helping us understand this 'big data' vortex—and in many ways, it seems eerily prescient when we consider it in light of the role that data and the data economy play in modern self-tracking practices.

In its broadest sense, 'function creep' refers to the ways in which a technology's use is slowly extended, often far beyond its original purpose. "What this means [in practice] is that quantification services are compelled not only to gather much more precise and intimate information, but also to link together information from different

domains of our lives" (Whitson, "Foucault's Fitbit" 350), which results in more and more information being available to the individual about themselves, and thus more and more monitoring. The paradox here is that more monitoring can actually prove stifling, not liberating, as in the case of Foucault's panoptic gaze. For QS practitioners, this is not a problem since they see this gaze as reflexive—they let technology watch them so that it can report back and provide information, which thus opens up new avenues of behavior and expression for *the individual user* to determine. For QS critics, however, the gaze is actually more insidious—it allows an individual's behavior to be subtly adjusted without them realizing it.

The key problem and source of division between QS and its critics is the fact that these concerns cannot be easily remedied: function creep is foundational to data-based self-tracking, and forms a core tenant of design for the hardware and software that enables it. More so than that even, function creep is imbedded directly in the evolution of the practice since the establishment of measures in the Ancient period, to more formalized forms in the spreadsheets used by Benjamin Franklin, then to the public weight scales of the nineteenth century and personal one of the twentieth, and finally to the electronic pedometers, Fitbits, and other activity trackers that can now calculate not just the steps we take, but our heart rate and sleep cycles, as well as caloric burn and intake rates.

To me, this is and will continue to be a site of contention because it function creep is actually a fundamental tenent of the Quantified Self project. Even Wolf seems to admit this when he describes the evolution of self-tracking and its methodologies of

practice. For him, the shift from linguistic (i.e. the attributes defined by Benjamin Franklin) to numeric is a recognition that numbers could allow more detailed penetration of human behavior and its mysteries. He writes:

> Ubiquitous self-tracking is a dream of engineers. For all their expertise at figuring out how things work, technical people are often painfully aware how much of human behavior is a mystery. People do things for unfathomable reasons. They are opaque even to themselves. A hundred years ago, a bold researcher fascinated by the riddle of human personality might have grabbed onto new psychoanalytic concepts like repression and the unconscious. These ideas were invented by people who loved language… [while today's] trackers are exploring an alternate route. Instead of interrogating their inner worlds through talking and writing, they are using numbers. They are constructing a quantified self. (Wolf, "Data-Driven Life" par. 14)

The key distinction that Wolf raises here is one between interpretation and construction, where the former is the result of language and the former is the product of data and numbers. He is echoing, essentially, the shift in methodology between the Ancient Greeks and Franklin. With the use of subjective and linguistic methods (preferred by the Ancient Greeks), the individual is always—to one degree of another—expressed and understood through a form of interpretation (ethics and the subjective 'truth' so often discussed by philosophers). Metrics and numbers, in contrast, offer the exact opposite form of knowledge. They offer an objective view of the person based on empiricism and

objective observation, a 'body' of knowledge that is constructed by the application of technology, mathematics, and self-surveillance.

In reflecting on this new kind of body, let us return to Yang and look more closely at her notion of the 'algorithmic body.' In response to the increasing privileging of data, she describes how we can see:

> […] an algorithmic body emerging from this ongoing project of building oneself up through data. The algorithmic body is established as the object of surveillance and monitoring for the purpose of intervention and it is the object of intervention as much as our physical bodies, and perhaps even more so someday. It is instructive that relating to, reflecting upon, and producing oneself today is performed through data. Data is the idiom of the biotechnological age and, increasingly, now the language of the self. (80)

The algorithmic body is thus comprised of discrete layers and filters that produce meaning. The fundamental layer is, of course, data, which is processed by the second layer, statistics, in order to produce understandable, digestible, and useful packets of information. The result is that the physical body "is transformed into pure information—the data double—so it can be rendered more mobile and comparable" (Whitson, "Foucault's Fitbit" 343)—which is precisely why, in the Canadian case, an unbiased third party firm was recruited to 'translate' the raw data, because in order for this data double to be at its most accurate and useful, it requires not only a vast pool of raw data with which to work, but also additional data against which to compare. As a result, the

tools provided to track the self are increasingly networked to parts of our lives not (seemingly) directly related to our physical selves—i.e. our social media and other accounts—and "what this means is that quantification services are compelled not only to gather much more precise and intimate information, but also to link together information from different domains of our lives" (Whitson, "Foucault's Fitbit," 350), so as to render individuals more knowable and comparable, which allows both identification and differentiation (in a Foucauldian sense)—two practices that also form the boundaries of any constituted subject.

The reason for all this collection, however, is rather simple and arguably justifiable: simply put, the accuracy of statistical inference is directly related to the sample population size. So the more data that the user provides to the self-tracking application, the more accurate the final calculations that it provides back to him. Yet what troubles Whitson and other surveillance scholars, as well as others critical of self-surveillance technologies, is the ability of this data to be used for other purposes: the function creep not just of what data is collected, but what it is used for. "Instead of individuals—irreducible and with an autonomous sense of agency—the new subject of governance is instead the dividual, an artifact of data mining searches and computer profiles. People, each as individual wholes, are unimportant" (Whitson, "Foucault's Fitbit" 343). What she speaks to here is a direct extension of the 'medical gaze' that Foucault addresses in *The Birth of the Clinic*: it is a detached, impersonal mechanism that cares only about systems, not individuals, and which harkens back to the very kind of oppressive power that Wolf and other practitioners see as outmoded. It also speaks to

a new division in how modern subjects are defined and constituted: the 'individual whole' is no longer the only component, because it is becoming increasingly complimented by a digital ghost ('dividiual') that renders the subject even more knowable. Function creep exists in order to gather the data necessary to most accurately define the contours of the 'dividual.'

Ultimately, this 'algorithmic body' that we see emerging is based upon and draws from this notion of the 'dividual' or the 'data double.' In fact, it could be argued that these are simply different terms describing the same exact concept. By favoring data, modern technology is increasingly favoring representations of people, not actualities—the modern subject is not so much known, but inferred. So when we talk about the 'algorithmic body,' we are actually talking about a digital reflection. Consider the personal injury case in Calgary with which this paper opened: the use of data provides strong evidence to the court, but is ultimately dehumanizing. The data takes away from the real, tangible, physical plaintiff that is standing there before the judge and the reality of her injuries—because while the data "allows tests, comparisons, and experiments," it simultaneously "make[s] [her] problems less resonant emotionally" (Wolf, "Data-Driven Life" par. 9) and reduces the recognition and importance given to the 'individual whole' being redressed by the legal system. In fact, I would take this one step further and assert that Foucault's 'medical gaze' and this new 'data gaze' operate almost synonymously. There is also the problem of ownership of the 'algorithmic body': again, consider the Calgary case, and how many hands touch the data. To whom does the

data ultimately belong if it can move around so easily? Certainly not the user, since they lack the ability to strictly control where, how, and to whom their data goes.

This loss of direct control over one's data represents another shift in self-tracking practice, which has historically been considered a personal activity and an expression of one's agency. With the advent of networked technologies, the practice itself has begun to operate somewhat differently. Self-tracking broadly and the Quantified Self now are essentially vast data collection mechanisms, digital vacuums that are siphoning virtually everything that they can while we, the individual users, are left to "broadcast our personal data as the price of participation" (Whitson, "Foucault's Fitbit" 344) while simultaneously "curating and maintain the accuracy of our 'data doubles'" (344) so as to squeeze the most possible utility out of our own information. Our role as agents have been reconfigured: our bodies are now not only the producers, but the stewards of ever increasing quantities of data. And as the Calgary case shows, the curation of that data is becoming increasingly important, as it is increasingly used to provide objective testimony about who we are as individual subjects. This is especially useful for the modern, automated, and efficiency-oriented institution or system, which can utilize that data to judge us and our claims quickly and efficiently. We do not even have to be present; our data double speaks for us. And even if we are present, who we actually are is weighed less than what our data says we are.

7. CONTROL CULTURE

Our new digital reflections—be they dividuals, data-doubles, or algorithmic bodies—are not also not limited solely to the tracking technologies that we apply to our bodies. Over the last few years, the rise and growing popularity of various monitoring tools has been sold to us by offered promises: of achieving health, fitness, control, knowledge, and the revelation of secrets about ourselves. We have been offered answers to our questions and guidance in the 'right direction' in exchange for not just our participation, but vast quantities of our personal and often deeply intimate data. And with the various devices we now use—everything from activity trackers themselves to smartphones, tablets, applications, etc.—becoming ever more integrated with one another, we are providing ever increasing volumes of data about various aspects of our lives—often without realizing that we are constructing our algorithmic doubles in the process.

Some scholars have argued that what we are actually witnessing is a slow shift in thinking in our culture towards a new belief that "the computer [has] become the assessor of reputation [i.e. social standing], with the assumption that technology is more objective and infallible than humans" (Whitson, "Foucault's Fitbit" 353). In essence, the concern is that more and more of our judgments—and the criteria used to make those judgments—are being outsourced to computers. Perhaps the most dramatic example of this is the recently revealed 'social score' system being deployed by the Chinese government. However, even the most critical scholars of self-tracking technologies are careful to point that they are not simply systems of control and regulation, but also a

means for an increasingly technology-oriented society to "interpellate certain subjects who are interested in autonomy, freedom, and self-regulation" by selling them technological tools marketed as aids specifically for achieving these outcomes. The result are, as discussed above, technological tools specifically oriented (and often advertised) as a means to achieve liberation, exercise agency, and improve.

Take, for instance, recent advertising for the Microsoft Band activity tracker: "in one image, a woman is standing on a bus, staring into the middle distance, while the tagline reads: 'this device can know me better than I know myself, and can help me be a better human'" (Crawford et. al. 487). The implication is clear: without the device, the woman is in fact a *lesser* human—along with all that term implies. And though we can read the consequences of this lesser status in multiple ways—from being disconnected in an increasingly connected society, to lacking the social perks and signaling that accompany use of the wearable—we have to recognize that there is a rather overt impetus imbedded in the advertisement: that participation comes to represent acceptance of a certain ideology about technology and technological citizenship (i.e. interpellation into the data economy). It is, in essence, overt social sorting functioning precisely how David Lyon has described it to us: by differentiating between 'better' and 'lesser' humans, self-tracking technologies allow institutions to organize individuals and differentiate populations based on market participation (in the form of technology products used and data provided) which—as Lyon and other critics have discussed—produces modes of inequality in which opportunity is offered to some precisely because

it can be denied to others (which, more often than not, reinforces existing inequalities and cultural preferences: in this case, for specific kinds of bodies).

And though the sorting might be overt, there is also subtle signaling involved in the marketing: one in which "the interplay of the text and the highly airbrushed image of the woman [in the Microsoft Band advertisement] creates a strange sense of a human–device hybrid – a cyborg form that is both human and not, with the wearable acting as a supplement to create a superior being" (487). There is embedded deep beneath the surface messaging a distinct flavor of transhumanism, a belief that advocates for the improvement of humans by technological means. Yet the framing of this creates the illusion that, regardless of how much 'health' one has, there is always more room for improvement, and thus more and more granular forms of self-knowledge and surveillance. The marketing acknowledges the function creep aspects of self-tracking practices and reframe them as a net positive.

Other critics, however, have suggested that we are also seeing the emergence a new kind of 'digital free labour,' which "has seen the dismantling of the structured, bounded, restricted, waged workday governed by rules, obligations and expectations" (Till 450) as more and more of the 'work' we are required to do is no longer contained with the contexts of traditional employment. This labor, in many respects, is based on social expectations—as noted earlier, the social signaling of wearing a fitness tracker makes suggestions about a person's character, so the work that is being done in this case is labor aimed at improving (or reinforcing) social standing. And if, increasingly, one's

social standing is determined through a combination of data and computerized judgment, then the need to provide data for assessment becomes ever more strongly encouraged.

As part of his argument about this new type of labor, Chris Till asserts that self-tracking devices are increasingly oriented towards extract data with value, a value that he implies is also a kind of overtly capitalist concept of efficiency—after all, there was nothing stopping people from exercising before, but now that data can be gathered and assessed, it takes on newer configurations of productivity. He observes that "while exercise may not always be productive of economic value, it certainly often produces objectified embodiments of the labour exerted and entails shaping and changing the character and body of a person, usually *one's self* [emphasis added]" (451), a change that begins to emphasize a value-driven, efficient, and productive body—and thus a productive self.

In fact, less than a year after his article was published, in August of 2014, John Hancock Financial seemed to take note of his idea, and began to offer a program to its life insurance subscribers in which "people who sign up will receive a free Fitbit monitor, which can be set to automatically upload activity levels to the insurer" (Bernard par. 6). Why, you might wonder? Because "the most active customers may earn a discount of up to 15 percent on their premiums, in addition […] [to] other perks" (par. 6), which directly ties their performance (the 'digital labor' performed) to economic rewards. Now to me this seems like a particularly eerie example of the "dismantling of the structured, bounded, restricted, waged workday governed by rules, obligations and expectations" (Till 450) because, under the new program, in order to receive a discount,

in addition to other rewards (i.e. payments), users are required to not only to wear their fitness tracker but also to report the data gathered. And though the structures of the workplace have (as Foucault discussed) functioned as forms of industrial surveillance, they were traditionally limited in their reach by the confines of the workplace and interest only in the professional life and performance of the employee. John Hancock's program, in contrast, represents a diffusion of surveillance beyond the confines of any one institution and into disparate parts of everyday life, while also functioning as a somewhat Orwellian check that makes sure that the user is actually using it in a manner proscribed by the company. Not only that, "the new program also upends the traditional approach to life insurance underwriting, which typically bases its pricing on a detailed but static snapshot of a person's medical status. Now, John Hancock's term and universal policies will be priced continuously, at least for consumers who choose the Vitality program" (Bernard par. 9). In essence, the program is fundamentally based upon "classifications […] designed to influence and to manage populations and persons [that may or may not participate in the program,] thus directly and indirectly affecting the choices and chances [for savings] of data subjects" (Lyon, "Surveillance as Social Sorting" 15). John Hancock has mobilized self-tracking technologies as a way to carry out social sorting of its customers, in order to determine which are valuable and which are not.

For those who sign up for this program, exercise becomes a form of 'work' that the user does outside of their formal employment, and which they carry out not necessarily because they *want to*, but because they *have to* in order to receive economic compensation and other financial rewards. In the case of John Hancock's program, the

base rationale behind it is not particularly insidious or mean-spirited—it is a product of capitalism's perpetual push towards innovation and efficiency. In fact, it can be argued that the underlying reasoning is entirely valid given the nature of public health and the insurance industry. Even if we see it as reasonable or at the very least justified, it nonetheless perfectly embodies the problem of function creep that was discussed previously—the infiltration of data into all aspects of daily life, and the increasing need for it to provide testimony about us. John Hancock's customers are now compelled to provide a constant stream of data, and thus testimony, about who they are and how they live their lives. That data is then utilized by the insurer to determine who's lifestyle is better for its bottom line.

Prior to Vitality—which is the name of both the John Hancock program and the third party firm that is helping to provide it—users could be fairly confident that they had some degree of anonymity because even though their data was stored on servers, it was only available in an anonymized way to any unauthorized external observers. Now the balance has changed and shifted so that users are required—at least if they want to reap economic benefits—to report their personalized data directly to a company so that it—and as a result, they—can be judged (much like one would be judged in a clinic or court of law). The program is optional, yes, but to opt out would mean paying full price—which is akin to a tax on those who, unlike the woman in the Microsoft Band advertisement, are lesser humans. The lack of rewards is, in its own way, a kind of punishment.

There is also an entirely different mode of control working here, in contrast to the individual desire to acquire self-knowledge. The pressure is now overtly external rather than internal, a form of soft coercion that carries with it tangible benefits and rewards. Not only that, participation requires reporting personally-identifiable data as opposed to anonymous figures. There is also the question implicit in the program "of what the ideal self should be, and how to operationalize this self into relevant components that can be monitored, measured, and rewarded" (Whitson, "Foucault's Fitbit" 352). For John Hancock is pretty straightforward: the ideal self is one that is physically active, which improves health and statistically reduces the chances of death (and thus payout by the insurer). Now, through the use of economic coercion, the "system designers [at a corporation] have more [direct] control [over our bodies] than ever [before]" (352), and can compel certain behaviors like Vitality compel, at the very least, some degree of physical fitness. Till even darkly compliments "the success with which corporations have been able to convince people to reconstitute their exercise activities into productive labour and to give it away freely may encourage them to expand this project in as yet unimagined ways" (455), to which John Hancock is just the harbinger of a much broader, institutional-level shift in how power is exercised. Here, the ideals behind the Quantified Self have been coopted and mobilized into a form of market force. It seems that some institutions have recognized the power of data and how much influence it can allow them to have on not just individuals, but entire populations—after all, an insurer like John Hancock will have access to information from thousands of customers, which it can analyze in order to determine common trends and behaviors that require

modification. If anything, Gary Wolf himself predicted and arguably laid the groundwork for this first when he wrote that:

> Until a few years ago it would have been pointless to seek self-knowledge through numbers. Although sociologists could survey us in aggregate, and laboratory psychologists could do clever experiments with volunteer subjects… [these experiments] left only the faintest measurable trace. Our only method of tracking ourselves was to notice what we were doing and write it down. But even this written record couldn't be analyzed objectively without laborious processing and analysis. Then four things changed. First, electronic sensors got smaller and better. Second, people started carrying powerful computing devices, typically disguised as mobile phones. Third, social media made it seem normal to share everything. And fourth, we began to get an inkling of the rise of a global superintelligence known as the cloud. ("Data-Driven Life" par. 15-16)

Thus it is not the technology itself that has led to this circumstance. Rather it is the recognition by institutions that it can be utilized to further their ends. In particular, the result of the Vitality program precedent is a movement towards a 'society of control' where "there is a movement away from human watchers and their associated [implicit meaning: biased] value judgments" (Whitson, "Foucault's Fitbit" 343), as was the case in traditional insurance underwriting, to a society in which judgments are made by computers (and are thus perceive to be more objective). The shift, as we have already observed with the emergence of the algorithmic body, is "a movement toward seeing

individuals only as bits and bytes in vast ebbs and flows of information" (343), which increasingly requires that individuals produce some kind of data in order to have more avenues of economic participation.

Yet "by tracking the aggregated desires of […] [QS] system users, finding patterns […], and then channeling those behaviors, organizations [like John Hancock] thus enact governance, knowing subjects and their motivations and desires well enough to determine how to get them to freely and willingly enroll in their projects" ("Foucault's Fitbit" 343)—which is precisely what Vitality represents, a reward for an activity that certain individuals are more likely to participate in. Ultimately, this represents a key conundrum raised by surveillance scholars, especially those who are seeking to escape what they see as the confines of panopticism. As David Lyon describes it: "the more stringent and rigorous the panoptic regime, the more it generates active resistance, whereas the more soft and subtle the panoptic strategies, the more it produces the desired docile bodies" (Lyon, "Surveillance Theories," 4). Vitality puts this into practice by being both optional and non-intrusive: data is uploaded automatically to the insurer without any need for direct reporting by the user. It functions, in essence, like an eye over their shoulder and subtly hand that 'nudges' them in the right direction—by, for instance, withholding rewards one month or providing more in another.

What Lyon recognizes is that the dynamics of power have not fundamentally changed since Foucault first described them in *Discipline & Punish*. Rather, they have simply been extended to their logical conclusion. What is the need for the traditional confines of an institution when human bodies and beings are increasingly networked and

observed by data-gathering systems? What is the need for the traditional mechanisms of division and regimentation when influence can be exercised much more subtly, often invisible, through faceless software systems?

Others, however, have argued that the data economy and growth of self-tracking practice has actually started to change the relationship that individuals have with themselves and thus with institutions. Not only are we now curators of our own data, but in the process of this stewardship we become intimately tied to the creation of our own identities—and thus the ways in which these identities are represented to outside parties. But this is also where invisible power becomes that much more insidious:

> In striving to live our autonomous lives, to discover who we really are, to realize our potentials and shape our lifestyles, we become tied to the project of our own identity and bound in new ways to pedagogies of expertise that are not self-imposed, but rather carefully sculpted by QS and gamification designers. These designers, in turn, are working to shape their own ideal subject-user—one who consumes product in the quest to care for and improve himself or herself, while generating ever more data that can be enrolled in ever more governance. (Whitson, "Foucault's Fitbit," 354)

What she describes in this passage should not, by this point, be entirely unfamiliar to us: it is, in fact, the very same contradiction that has existed in self-tracking practice ever since its earliest conceptions. Did the Ancient Greek who practiced regimen and dietetics take an active, autonomous hand in his own subjection? Yes, though ultimate the very

means by which he constructed himself were proposed, formulated, and debated by others who existed entirely separate from him. Today, the invisible hands of software designers operate in the same way, with the exception that they are mostly unknown, obscured by code, and hiding in the shadows behind our computer screens. Unseen by us, they imbue the design of self-tracking tools and platforms with what they see as the components of the ideal subject, much like the ancient philosophers debated the particulars of regimen and dietetics in order to uncover the perfect mind/body balance. The very same applies to the 13 Virtues and Benjamin Franklin—he constructed his program based on the ideas and conceptions of morality that he encountered, which he took into account as he defined down his own criteria in response to them.

What *has* changed, however, is the way in which self-tracking interacts with disciplinary power: they have, over time, drawn closer and closer together. It used to be that a self-tracking project was something that one carried out in relative isolation while, simultaneously, a separate system of subjectification took place in the various institutions in which one participated. A single person could, at the very same time, be acted upon by overlapping systems of subjection: for instance, they could participate in a diet and exercise regimen at home, while undergoing a separate developmental regimen in the clinic, workplace, or school. But with the emergence of the information society and its data-based technologies, its data-gathering products and new statistical data science, we have entered a new realm in which the traditional separation of institutions has become blurred by cloud computing and internet networking. Digital data, after all, cannot be constrained by traditional walls.

It used to be that for an employer to know you—really know you—they would have to deploy traditional techniques of investigation and surveillance: questionnaires and personality tests, recording devices, assessment programs. These tools were overt and known to everyone. They were visible mechanisms, transparent in their deployment, and based on a degree of implicit agreement between the employer and the employee. Now no such transparency exists and all the employer has to do is know the right places to look for your data: your social media profiles, your activity tracker, information gathered about you by service providers which is then compiled, cleaned, and sold by data brokers. Before, you could construct and curate a specific kind of professional identity. Today, such compartmentalization of the self is far more challenging. You have become more *knowable* and data about you has made you more easily *transferable*: your algorithmic body is now just bits and bytes of information, data that can easily be sold and transferred between the various computer systems and regulatory mechanisms of different institutions. The court, for instance, can now accept or even ask for your data in order to assess the claims you make, thus transforming your body itself into evidence and a site of verification. Your insurance company can ask for the same in order to provide you discounts—or, as we might see in coming years, to encourage certain behaviors or prove that filed claims are actually fraudulent. The use of data, in other words, is becoming increasingly mandatory, and a tool for social sorting and population management. Without data, one is becoming increasingly alienated and excluded from a whole range of services. One becomes alone, unknown, and disconnected.

Gilles Deleuze, in his "Postscript on the Societies of Control," foresaw this very reconfiguration of Foucault's disciplinary power and disciplinary societies into what he called 'societies of control'. He invoked, almost a quarter of a century ago, "ultrarapid forms of free-floating control that replaced the old disciplines." And he described how "we no longer find ourselves dealing with the mass/individual pair. Individuals have become *dividuals* and masses, samples, data, markets, or '*banks*' [sic]" (5). If anything, these forces and changes have only accelerated since Deleuze first wrote about them—we are seeing them emerge in their early, primitive forms of practice. And the use of 'health' and data about our bodies by insurers, lawyers, and courts is only the beginning. If anything, all of this "seems prophetic of the increasing tendency of government to regulate our pleasure, our food, and our private behavior, even as its power grows more intrusive and more repressive of our civil liberties and our public habits" (Klein 17), which in and of itself is representative of function creep on a much grander scale of institutional power.

Looking ahead, we can already see this transition beginning. In 2009, in the United States, the American Recovery and Reinvestment Act set aside $1.5 billion for Health Information Technology (HIT) and tasked the Office of the National Coordinator for Health Information Technology (ONC) with charting out a vision for how HIT could be better deployed to streamline the healthcare system and improve public health outcomes. Six years later, the office published its Strategic Plan, which runs from 2015 to 2020. In the document, the ONC outlines a vision of a future system in which health data and information is increasingly available and mobile: "existing and emerging

technologies provide a path to make information and resources for health and health care management universal, integrated, equitable, accessible to all, and personally relevant" which "can facilitate improved public health surveillance, [and] *collect more complete and accurate data* [emphasis added]" (11). "In turn, these partnerships *require* [emphasis added] patients to be engaged and active in their own health and health care" (11), while the doctor or medical providers is watching to make sure that the patient is enacting appropriate and desirable behaviors.

In the closing hours of 2015, Roy Wyman of the law firm Nelson Mullins Riley & Scarborough LLP's Healthcare Regulatory and Transactional Team,reported on this document for TechCrunch. He observed that the ONC was actively supporting the "increased use of in-home, wearable and portable devices that monitor your activities and health 24 hours a day and send that information to your caregiver (or, potentially, your insurer and employer)" (par. 5). But as we have seen, this is happening already—at least in the private sector. Wyman takes this observation further and foresees an even darker future, arguing that the plan portends "a Faustian Bargain, faced by each individual or society as a whole, in which one must choose between personal privacy and the full benefits of available healthcare services" (par. 9). I would assert that this bargain is already here and being actively tested in the open market. If anything, it is more likely than not that the government is intentionally waiting in background, assessing how programs like Vitality work, watching and learning in order to make their own applications that much more useful.

8. CONCLUSION

In closing, I would like to suggest that we are in the middle of yet another transitional moment in the history of self-tracking practice. Right now, however, the principles of the practice are being taken up by institutions rather than individuals, a first in the history of the practice. At stake is nothing short of a fundamental question: who are we as individual subjects, how are we constituted, and how do we testify to this when the 'truth' of who we are is increasingly reduced to streams of numbers? And, the logic follows, how closely are we actually bound to our digital halves, our data doubles?

The first set of these questions is the one on which I have sought to focus in this paper. And the answers to them are still messy and rather complicated. In essence, I have tried to show that we are caught up in a moment of tension between self-definition and being defined by external forces: data offers us a double-edged sword in that it allows us to know ourselves better, while simultaneously making us more open and knowable to others. As subjects, we are increasingly being asked to 'verify' our selves by offering our data as evidence. As such, the modern institution favors our representation, our data double, over our actuality and presence. The result is that, more and more, we are required to generate more data in order to become more 'real' in the eyes of the external world. And as long as this continues, our divided subjectivities will increasingly lean more heavily on our digital representation, as opposed to older subjective forms.

The final question above is what comes next, or perhaps in future iterations of this project. How close bound are our two selves? Is the data double even accurate? Most proponents of QS and 'big data' would say yes, invoking objectivity and statistical

reasoning. But in a cultural moment obsessed with information, I believe that it is necessary to take a step back and look at the bigger picture. With institutions relying on data more and more to tell them about individuals, can that data ever really be objective? Is it not essentially a representation, open to manipulation and tampering, misreading, or confirmation bias? And to what extent can we rely on data when it arrives at our eyes through filters, be they the limitations of individual sensors or frames of statistical inference? Here surveillance studies has much to offer by questioning conventional beliefs and assumptions. I would suggest however, at least in a very preliminary way, that the relationship is growing closer: not because the data double is growing more accurate, but because it is slowly taking over. In the modern world, it is becoming favored and may eventually become the default.

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