

Typewriter, telephone, transistor: Labor politics in three formats

Melissa Gregg

Abstract

How do employers encourage productivity in knowledge workers? How do we measure outputs and accomplishment in a world of immaterial labor? Inspired by Kittler's (1999) Gramophone, Film, Typewriter, this article traces a series of management innovations over the past century that cumulatively determined the speed and character of labor. In the shift from shop floor to social factory, productivity moved from an external imposition to a performance of individual will – a lifestyle choice for responsible professionals. The personalization of productivity completes a process of professional subjectification that sutures aspiration and athleticism to competitive ends. It turns the workplace into a sporting field that promises to reward champions.

Step inside amazing

Recently the walls around my workplace started to change. Stepping off the courtesy shuttle one morning, a bus ride that links Hillsboro Airport train station and Intel Corporation's Oregon campus 20 miles west of Portland, I noticed a huge bright blue banner covering the front entrance of the grey, anonymous building known as Jones Farm. 'Moore's Law Inside: 50 years of Amazing Experiences Outside' read the sign, its electric hue asserting itself against the otherwise drab office exterior. Entering the vast cubicle hub that is JF-3, gracing the walls, foyers and hallways linking various common areas, smiling employees populated posters and elevator doors, their names and full-sized body renderings superimposed over the new marketing slogan. The company blog, *Circuit*, asked us to nominate colleagues we consider to be particularly amazing for the purpose of producing further publicity materials. Daydreaming in line for coffee, in a new campus cafeteria 'inspired by Portland's food cart scene,' I consider

what I would do if the sales and marketing team asked to use my photograph in a customized print trumpeting the benefits of having ‘Melissa Inside’.

Most employees probably first became aware of Intel’s ‘Let the Inside Out’ campaign by way of a screensaver automatically downloaded as part a regular security update foisted on our computers. For the duration of the Moore’s Law anniversary month in April 2015, any company laptop left untouched for more than a few minutes reverted to a lock-screen and password request, along with the motivational prompt: ‘For 50 years Moore’s Law has propelled us forward. Imagine what we’ll do for the next 50.’ Through the many transitions in the course of an average day, the security screensaver doubles as a company refrain asserting the identity and integrity of the business, like an old IBM songbook, or a pledge of allegiance. As an example of internal marketing, the terms of media¹ conditioning the workplace environment here are multiple, whether it is the vision and rhetoric involved in imagining the future, the projected confidence of believing that there will be 50 more years of any company, let alone Intel, and, perhaps most importantly for my own job, defining through sound bites the constitutive qualities of ‘amazing’ – indeed, of ‘experience.’ As a User Experience Researcher, my role is to take these words literally, to advise engineers as to what counts as a ‘delightful’ experience for users, so that they can enable equipment manufacturers to turn such affective encounters in to ‘solutions’ and ultimately products that can be built, packaged and shipped.

“Cramming More Components onto Integrated Circuits,” published in *Electronics* magazine in April 1965, outlined the phenomenal and at the time exponential growth of transistor power relative to size and cost. Based on retrospective accounting, Gordon Moore predicted computer chips would double in complexity every year, at little or no added cost, for at least 10 years. A decade on, the forecast was revised to every two years, though the broader premise remained. ‘If Silicon Valley has a heartbeat, it’s Moore’s Law,’ Valley consultant Rob Enderle observed in a representative anniversary press feature. It ‘drove the valley at what has been a historic speed, unmatched in history, and allowed it to lead the rest of the world’ (Carey 2015). Enderle’s

¹ This is a longer version of a paper given at Leuphana University’s ‘Terms of Media’ conference, Lüneburg, June 2015. See the full conference description at: <http://cdc.leuphana.com/events/event/the-terms-of-media/>

repetitive and clearly hyperbolic claim goes some way to capturing the substantial ideological and financial stakes involved in high tech's growth narrative. 'In the beginning, it was just a way of chronicling the progress,' Moore himself admitted of his paper in interview for the golden jubilee: 'But gradually, it became something that the various industry participants recognized... You had to be at least that fast or you were falling behind' (in Carey 2015). In this sense, Moore's Law is better understood as a recursive loop in which a handful of influential companies race to confirm a hypothesis that itself was never intended to be permanent. This inflated athleticism – the drive to keep up to speed with reassuring ideals of accomplishment backed by science – is observable in the dominant media formats of three very different moments of industrial production over the course of the last century. The typewriter, telephone and transistor serve as useful contrasts in assessing hegemonic notions of superior workplace performance, as the rest of this paper will show.

How many workplaces can claim to dictate the speed of production for an entire industry? Indeed, how many ideas that propel a company equate to a hypothesis of modernity? Intel's role in the ecosystem for hardware manufacturing and chip design is not without precedent. Just as the 'tick-tock'² cadence of Moore's Law governs the temporality of Intel's fabrication plants, earlier moments of industrial capitalism reflect embedded assumptions about the temporality of productivity. Fritz Roethlisberger and William Dickson's *Management and the Worker* (1939) is the much debated published version of what are known collectively as 'The Hawthorne Studies': experiments at the Western Electric company in the Chicago suburb of Cicero in the 1920s and 30s. Before the transistor's reign, the Hawthorne plant was the manufacturing subsidiary of the largest telephone company in the United States. American Telegraph and Telephone (AT&T) provided employment opportunities for thousands of Americans during the highpoint of welfare capitalism. Before the dormitory cities of present day Foxconn, or the stock benefits of CEOs and tech geeks, Western Electric hosted company picnics for workers living amidst the imposing factory precinct and offered shares for

² The tick tock model explained: <http://www.intel.com/content/www/us/en/silicon-innovations/intel-tick-tock-model-general.html>

employees to purchase.³ Headcount at Hawthorne nearly doubled between 1927 and 1929, from 21, 929 to 40, 272 workers (Gillespie 1991: 128). To assist with this vast expansion in operations, the company hired consultants from Harvard Business School to conduct research into retention and efficiency. What began as a simple and inconclusive ‘illumination study’ gauging the impact of brighter lighting on output led to further exercises in various environmental and practical factors thought to affect employee performance. Amassing tens of thousands of interviews with factory personnel, the Hawthorne Studies remains the most comprehensive investigation of employees ever conducted in a single location.

The Hawthorne researchers followed and extended productivity premises established by pioneers of time and motion studies such as Frederick Taylor. Writing in an issue of *The Efficiency Society Journal* in 1912, Henry R Towne, President of the Yale and Towne Manufacturing Company, describes scientific management as nothing more than ‘the effort to have the right article in the right place in the right quantity and at the right time.’ Like many captains of industry at this time, Towne promoted the benefits of this new science, which assumes that minimizing unnecessary motions is in the interests of both worker and manager. Scientific management advanced the embryonic field of ‘fatigue studies’ towards a more compelling synthesis of ergonomics and psychology. Workers’ bodies came under increasingly greater levels of scrutiny in the quest for what Taylor contemporaries and sometime rivals Frank and Lillian Gilbreth called ‘the one best way’ of completing a task (Lancaster 2004). In alliance with the stopwatch, film was the medium of choice adopted by these efficiency engineers in the early days of management consulting. For the benefit of supervisors, these methods of capturing movement and form could be used to ‘determine the situation’ of the worker, in the sense that they provided the terms on which her performance could be judged.⁴

³ The Harvard Business School’s overview of both the Hawthorne Studies and the beginnings of Human Relations in industry is at: <http://www.library.hbs.edu/hc/hawthorne/>

⁴ Here I deliberately echo the determinism in the opening words of Frederick Kittler’s *Gramophone, Film, Typewriter*. To contrast Kittler’s view, this paper aims to identify moments of controversy and resistance in the archaeology of media as it relates to the history of management theory .

Training champions

Perhaps the most famous reform associated with Frank and Lillian Gilbreth is reducing the bricklayer's stoop through the provision of on-site scaffolding. As a former bricklayer himself, Frank understood the energy and effort that could be saved by placing bricks within arm's reach of the worker.⁵ The Gilbreth films provide before and after insight on the unnecessary motions involved in a variety of tasks, including card punching, pear washing, soap packing and produce labeling. In many of the reels, a portly, officious, waist-coated Frank supervises proceedings and accompanying information slides and statistics. Productivity comes alive as both a quantitative and qualitative measurement in these initial forays into industrial PR, some of the first examples of promotional film (Curtis 2009). The camera's ability to track the worker's body, hands and eye movements creates an unprecedented level of accuracy in recording the labor motions under observation. Unlike the 'stop watch men,' as the Taylorites were often known, the Gilbreths' films and other light-based imaging devices aimed to capture activities taking place at speeds beyond human perception. Providing an empirical basis for the physiology of labor, time and motion films summoned the spirit of more artistic chrono-photographers such as Etienne Jules Marey and his mesmerizing renderings of human and animal form in motion.⁶ Applied to worksites, these technical systems had the benefit of removing managerial bias in capturing field data. For the first time, workers could see the activity upon which their performance would be judged. Trained to recognize and covet optimization, the worker could begin to contemplate managing taskloads for himself.

One notable demo in the Gilbreth archive shows the method involved to 'train a lady to become a champion typist.' Sitting at her desk and typewriter, the worker in this film⁷ calmly processes lines upon lines of text against the backdrop of a ticking clock. Her fingers move, her left hand raises as she moves the carriage to return. The only break in output is to adjust the page and place a tick on the completed document. Departing from this set framing, a subsequent shot shows the typist's face in portrait style with particular attention focused on

⁵ YouTube footage is at <https://www.youtube.com/watch?v=IDg9REgkCQk>

⁶ A selection of these films are available at <https://www.youtube.com/watch?v=11KItGNuiY>

⁷ Online at <https://www.youtube.com/watch?v=8iTOSgAnJ54>

her eyes. The written slide explains the purpose of the film, to demonstrate 'Early Studies of eye movements in conjunction with the motion of hands.' Gilbreth's new keyboard layout minimizes both hand stretching and head turning. The wide eyes and demure smile playing across the typist's pale face convey delight at her industry and the modesty of an earlier era.

Later still the typist's hands become the focus for further close-up inspection. A grid of squares is transposed over footage of the busy fingers, assisting the measure of activity relative to the space occupied or touched in each square. The grid's addition is a development from the blank backgrounds of Malvey's films, producing a layer of scientific certainty to the visions on screen. Curtis (2009) explains the performativity of these Gilbrethian methods, which, through inventions such as the stereocyclegraph, tracked movement using slow-motion photography. Applied to the hands of workers, tiny light bulbs generated a ghostly trace of labor otherwise lost, an apparatus of capture to mediate micro-movement for subsequent assessment.

However accurate these representations may have been, their effect is to turn film in to a landscape of data ripe for survey and inspection. The Gilbreths enabled 'one kind of image (detailed, moving)' to be transported and reified 'into another (simplified, still)' so that the elements of a task could be identified. Their cinematic depictions of micro-motion created 'a graphic image of what efficiency and inefficiency look like' (Curtis 2009: 93).

The portrait of the individual worker captured on camera is a new kind of labor performance, an act choreographed and directed for a witnessing audience. In *The Psychology of Management* (1904), the book arising from her PhD, Lillian Gilbreth makes an explicit link between the worker's desire to have his performance recorded for history and the ambitions of actors hoping to have their artistry captured for posterity on film. From this perspective, scientific management emerges as an obvious solution to workers' frustration at not having a record of accomplishment for the day's toil. The measurement of motion efficiency relative to output generates an archive of achievement, much like the actors and singers who were also 'grasping the opportunity to make their best efforts permanent through the instrumentality of the motion picture films and the talking machine records.' In Gilbreth's account, knowledge that the archive will be compiled creates interest in the work, for with it 'comes the possibility

of a real, scientific, “athletic contest” (33-4). For the worker, attention ‘is concentrated on the fact that he as an individual is expected to do his very best’:

He has the moral stimulus of responsibility. He has the emotional stimulus of competition. He has the mental stimulus of definiteness. He has, most valuable of all, a chance to be an entity rather than one of an indiscriminated gang (36-7).

Gilbreth writes at a time when Taylorism faced vocal criticism from workers concerned about its heartless quantification methods. She aims to assuage doubts by arguing that, ‘under Scientific Management, the spirit of individuality, far from being crowded out, is a basic principle, and *everything possible is done to encourage the desire to be a personality*’ (48; emphasis added). In the case of the typist, working against her own previous record, embracing productivity becomes a way to match and better a previous version of herself, and, in turn, a way of being recognized. Gilbreth anticipates that individual performance will ultimately draw out new kinds of pleasures for workers that will rival the security and comfort of the group. ‘This chance to be an individual, or personality, is in great contradistinction to the popular opinion of Scientific Management which thinks it turns men into machines’ (36-7).

The Gilbreths’ introduction of motion to time-motion study is significant on multiple levels. Applied to manual work, the cinematic apparatus transforms the worker’s conception of her job away from a team or gang to a personal achievement. This visual account, and the performance of productivity for a witnessing eye, coincides with the first mainstream experiences of cinematic vision. The intimacy of the close-up, particularly in the capture of the face and eyes, produces the coordinates for appraising the worker as a particular kind of actor. The typist’s gaze is offered for scrutiny, her movements open to mastery and replication given the assumed benefits of reform. Time and motion studies educate viewers in the dynamics of empathy and recognition through filmic projection. Like the male gaze that would come to be associated with the pleasure of Hollywood narrative (Mulvey 1975), industrial film normalizes the manager’s view of a world waiting to be optimized. Identifying with the recorded image turns work into a science, labor into information, and the worker into an individual. Improving upon one’s own prior record becomes a seductive prospect and mark of distinction. For the

typist, accomplishing ever greater productivity – becoming ‘a champion’, in the words of the film – is a victory she alone can possess.

Mayo’s missing women

It is precisely the principle of separating workers from each other and assessing individual contribution that we see in the Hawthorne experiments at Western Electric. In the famous instance of the women in ‘The Relay Room,’ five assemblers and a parts assistant were chosen to work in an area shut off from the main factory floor so that their activities could be better monitored. Recording outputs by way of an automated ticker, the workers’ productivity was plotted on graphs reflecting their individual performance relative to each other and specific variables, such as hours of sleep.⁸ Some of the measures used to test the relationship between motivation and speed included rest times, changes to starting/stopping hours, and free meal provision. For the duration of the study, the group pay rate was calculated relative to the individual contributors on the smaller team rather than the customary number of up to 100 team-mates on the regular shop floor. This financial incentive clearly matters to any assessment of the productivity gains amongst workers in the study, as is now recognized (Gillespie 1991: 55). In official records however these wage adjustments were downplayed to focus on the psychological and even physiological concerns of interest to the consultants. The women varied in age from 18 to 28, and had Polish, Norwegian and Bohemian heritage. Like the broader Hawthorne population, many were breadwinners for their first-generation migrant families. The pressure to maintain employment at a time of growing economic instability (the study ran during the unfolding Depression in 1927-32) is a further consideration affecting the research findings, since the work itself was not obviously fulfilling. The work of telephone relay assembly ‘required manual dexterity, along with a willingness to repeat the same task every minute or so for almost nine hours per day, five and a half days per week’ (Gillespie 1991: 51). Both hands were needed ‘to place pins, bushings, springs, terminals, and insulators between plates, insert a

⁸ Reproductions of the graphs can be seen in these samples from the HBS collection: <http://www.library.hbs.edu/hc/hawthorne/03.html#three>

coil and armature, then screw the assembly together’, equating to ‘thirty-two separate operations for each hand.’

At the time of the Hawthorne Study, Harvard’s Fatigue Laboratory tested the latest theories of employee conditioning and wellbeing, consolidating the emerging field of workplace ergonomics. Elton Mayo, the Harvard professor recruited on a retainer to consult for Western Electric, drew liberally on existing fatigue research in developing his approach to analyzing employee productivity. His *Human Problems of Industrial Civilization* (1933) maintained that some workers were better suited to withstand the physical and mental effects of repetitive job tasks: the ‘capacity to be unfavorably influenced by repetitive work differs between individuals in respect of, for example, what can be tentatively called intelligent endowment and temperament’ (35). Not a trained doctor (he dropped out of medicine several times before fleeing his homeland Australia), Mayo was appointed to his first US academic post on dubious credentials (Trahair 2005: 198). His success at Harvard is typically attributed to a combination of charisma and suggestive, provocative ideas. As part of a wealthy Adelaide family, he mixed in high-class company throughout his life, networking successfully to attain his first teaching post at The University of Queensland. Mayo counted the anthropologist Bronislaw Malinowski among his close friends. Intellectually, he drew from child psychologist Jean Piaget and Alfred North Whitehead alongside Freud, Jung and other advocates of therapeutic technique. This heritage forms the basis for the vast schedule of interviews conducted at Hawthorne. One-to-one dialogues carried out by specially trained managers were seen as essential to uncovering the basis of worker sentiment. Attention to the holistic social and personal life of the individual was thought to get to the heart of any grievances – or in Mayo’s psychoanalytic parlance, ‘neuroses’ – affecting performance on the job. The conviction that these details would provide suitable material for management was justification for the unprecedented investigations in the Relay Room.

Records in Harvard’s Baker Library show the data collected over several years of the study extended to organ health and blood count, in line with dominant ideas of fatigue studies and its relation to athletic capacity and fitness. Judgments conveyed in the records mix medical opinion, morality and anthropological classification in assertions such as ‘body and ears normal’

to 'underwear is clean and sufficient.' The information gathered about the five assemblers expanded beyond physical attributes to extensive investigations of home, neighborhood and family life. To the Harvard researchers, any insight that could be gleaned from the outside work environment was fair game in the quest to uncover the secrets of enhanced productivity. Observations covered everything from the content of workers' lunches to dental health, footwear choices and number of hours slept at night, in addition to more vague assessments ('she is subject to worries'). Moving the workers from factory to clinic for medical examination added a further layer of scientific scrutiny and authority to the research program while side-stepping the power dynamics of employee/management roles. 'The doctors exploited the doctor-patient relationship to ask the workers questions that the women might otherwise have been unwilling to answer,' Gillespie (1991: 54-5) notes, 'including the timing of their menstrual periods. A heavy paternalism suffused the relationship of the researchers to the workers and colored their perceptions.'

This unique mix of physiological and psychological appraisal had distinct consequences for the women who failed to meet preconceived expectations. Adeline Bogatowicz and Irene Rybacki were two workers initially chosen for the relay assembly study whose behavior challenged the researchers' hopes for enthusiasm and obedience. Repeatedly scolded for talking too much during the workday, both girls were ultimately dismissed from the experiment on the grounds of 'uncooperative behavior' (Trahair 2005: 229). Hospital visits were the source of particular consternation for Bogatowicz, who was regarded as especially 'antagonistic' on these occasions. Following her expulsion from the test room, she eventually left the company, leaving behind Rybacki, whose output had decreased in the lead up to Bogatowicz's marriage (230). Called to account for the troublesome pair, Mayo attributed Rybacki's deteriorating effort to a poor blood count. This retrospective diagnosis remained a favored piece of evidence used by Mayo to promote the benefit of medical surveillance in workplace research. As Gillespie (1991: 73) surmises:

Rybacki's removal from the test room demonstrates a persistent tendency in Mayo's work to transform any challenge by workers of managerial control into evidence of psychiatric disturbance. Thus, Rybacki's assertions that she would work as she liked

became evidence to Mayo of fatigue and Bolshevism, and her objections to having her conversations secretly recorded were indications of paranoia.

So many years later, it still seems necessary to reiterate that this cornerstone study of productivity in the manufacturing era, a research program that influenced theories of management for decades, simply removed the two workers that acted in conflict with its goals. Two of the five women resisted the most invasive aspects of the investigation, and this activity prompted compensatory measures from management. The decision to allow small parties on the day of the doctor's visits – previously unthinkable privileges such as cake, ice cream, tea and radio – was an effort to assuage the women's negative reactions to the indignity of scientific measurement. If such gestures were close to a form of bribery, they were also indication of the workers' determination 'to influence the test room environment in exchange for their participation in the experiment' (Gillespie 1991: 59).

The removal of women deemed too talkative for the workplace is not just a story about silencing dissent; it confirms the burden regularly placed on women to embody dexterity and docility.⁹ Hawthorne shows that the productivity imperative failed to address all workers from the very beginning. The need for speed – the drive to enhance athleticism to lift output and improve efficiency – relied upon a neat combination of economic precarity, social subjection and corporeal incursion. The paternalistic and coercive authority enacted by Mayo and his colleagues provided a pernicious basis for the emerging field of management.

The productive lifestyle

The forms of visual literacy and individual performance monitoring inaugurated through iconic productivity studies live on in today's self-quantifying technologies available on a proliferating number of computing devices. Lillian Gilbreth's intuition that worker and manager both benefit from the exercise of individual will anticipates the market for systems such as Rescue Time, one

⁹ As Kittler notes: 'It was precisely their marginal position in the power system of script that forced women to develop their manual dexterity' (1999: 194).

of many tools claiming to enhance productivity by way of an easy download. Just like the filmic grid that isolated finger strokes in the typewriter era, Rescue Time provides personalized analytics of the minutiae of eye movement (screen use) and platform preferences throughout the course of a worker's day. Generating a record of activity and accomplishment creates evidence of present performance, prompting reflection on the best way to achieve reformed results in future. Swift Key is another example that updates the typewriter to the mobile era by creating a visible trace of texting. Swift Key's smart keyboard eliminates wasted motion by learning the touch patterns of users. Repeated spelling mistakes and past practices help to predict preferred movements and optimize suggestions that 'suit your style.' In an echo of Gilbrethian cyclegraphs, the lines traced across the QWERTY layout evoke finger traces enhanced to perform at the speed of light.

Compared with the omniscient gaze of the manufacturing researcher or the minute observation of a slow motion camera, productivity tools appear comparatively innocuous in that they are less obviously tied to power structures in the workplace. For the knowledge workers who use them, they are a way of navigating a patchwork of jobs and projects that fail to line up with the compensation offered by any one employer. Productivity tools follow a wider pattern of enthusiast-driven data optics in that their adoption is largely self-chosen. This marks their difference from the regimes of efficiency and output that continue to govern the hardware assembly line as much as 'gray collar' service industries (Qiu 2009). For an elite class of professional, these tools are the contemporary equivalent of the time and motion films that taught workers to see 'what efficiency looks like' (Curtis 2009). Rendering screen-based motions into data, the platforms allow insight on the self we may otherwise never see. Productivity tools enable the possibility of reforming bad habits through enlightened instruction, a set of rituals for availability and right action. The productive lifestyle is an 'aesthetics of existence' that enables knowledge professionals to thrive in spite of the many obstacles to 'getting things done' (Gregg 2015). It is the end result of a series of technical innovations that allowed individuals to view themselves differently, namely, from the point of view of efficiency. The cinematic apparatus made the possibility of sensor-based self-tracking not only likely but desirable as an effort to prove one's ability to eliminate waste and excel.

The spirit of competition that time and motion study encouraged among workers at the turn of the century marks the beginning of a form of collegial scrutiny with dire consequences for labor. The 'athletic contest' outlined by Gilbreth entailed a frank assessment of team-mates who posed a liability to one's own rewards and success. The possibility of having one's performance recorded for future revision consecrated a process of ever more personalized measures for individual contribution. Workers were able to harness data to advance their own interests, with or without benefits accruing to colleagues. In addition, management initiatives that turned annual, bi-annual, and monthly performance objectives into self-nominated confessionals traded on the tradition established by Mayo that therapeutic encounter, dialogue and paternal concern would ensure more thoroughgoing identification with the employer and the job (Illouz 2007). This historical context helps to make sense of the forms of intercollegial branding with which I began this paper. For a company like Intel, simultaneously harboring the work practices of the manufacturing era alongside more qualitative indices of creative and symbolic work, management theories and employee incentives must operate on several levels at once. The efficiency of fabrication plants is secured by many of the same incentive schemes that human factors engineers identified in the early years of business scholarship. When it comes to motivating knowledge workers however – the technical and social experts who form the research, marketing and engineering backbone for IT – the pace of production is affected by immaterial factors. Maintaining morale in a high tech setting that is notoriously male-dominated and aggressive poses questions of identity and complicity by association when few alternative workstyles are displayed or rewarded in an organization's hierarchy. 'Letting the Inside Out' provides an opportunity to offer subtle forms of support, sanction and encouragement for employees seeking visions of accomplishment beyond the sheer speed and velocity of business. The program provides an avenue for individuals to be noticed and appreciated in the otherwise anonymous conditions of a large bureaucracy. Appealing to uniqueness allows everyone the opportunity for 15 minutes of fame, a chance to star in the broader roadshow that is Intel's ongoing success in the semi-conductor industry. Nominating and celebrating colleagues' specific qualities and experiences also fosters confidence in the broad skill set driving the team. It deflects pressing concerns about structural inequality and

diversity in senior positions by enabling employees to shape the image of the company, and by association the industry, to appear more like them.

If labor politics were once premised on the idea of placing limits on work – reducing hours as much as winning rights and benefits – today’s iconic industrial settings often aspire to produce an environment actively hostile to the idea of work as laborious. The privileged knowledge class employed in the technology sector is regularly urged to ‘love what you do,’ and create a ‘life’s work’ with a host of services dedicated to the serendipity of dynamism, networking, and project-based livelihoods. In companies that continue to promote a job for life, with perks devised to stave off competitor wooing, workers are encouraged to associate their success with that of the firm. Like a sporting team, we are invited to display our personal accomplishments in the terms supplied by the coaching and support staff of the company. The cost of this alliance is the wholesale association of personality with position, ‘the soul at work’ (Berardi 2009). Like Gilbreth’s typist, you too have the chance to star in the script, the profitable performance that is your labor. And who can resist the joyous imperative to be amazing?

Faced with these highly aestheticized visions of contemporary work – the pleasures of the productive lifestyle – today’s professionals must remain cautious of transforming management and media ecologies that, in selling commitment to the company on *its* terms, merely repurpose an old and tired script. In this, we are wise to remember that the politics of labor remain consistent in spite of the obsolescence of any specific format: to ensure that our performances are not only worth the sacrifices they engender, but that they are destined towards ends that we collectively direct.

References

- Berardi, Franco 'Bifo' (2009) *The Soul at Work: From Alienation to Autonomy*, MIT Press.
- Carey, Pete (2015) 'Silicon Valley Marks 50 years of Moore's Law,' *San Jose Mercury News*, April 20: http://www.mercurynews.com/business/ci_27934824/silicon-valley-marks-50-years-moores-law
- Curtis, Scott (2009) 'Images of Efficiency: The Films of Frank B. Gilbreth' in Vinzenz Hediger and Patrick Vonderau (eds) *Films that Work: The Productivity of Media*. Amsterdam University Press 85-99.
- Gilbreth, L M (1914) *The Psychology of Management: The Function of the Mind in Determining, Teaching and Installing Methods of Least Waste*, Sturgis & Walton, New York.
- Gillespie, Richard (1991) *Manufacturing Knowledge: A history of the Hawthorne Experiments*, Cambridge University Press.
- Gregg, Melissa (2015) 'Getting Things Done: Productivity, Self-Management and the Order of Things' in Kevin Hillis, Susanna Paasonen and Michael Petit (Eds). *Networked Affect*, MIT Press.
- Illouz, Eva (2007) *Cold Intimacies: The Making of Emotional Capitalism*, Polity, London.
- Kittler, Friedrich A. (1999) *Gramophone, Film, Typewriter*, Trans. Geoffrey Winthrop Young and Michael Wutz, Stanford University Press, Stanford.
- Lancaster, Jane (2004) *Making Time: Lillian Moller Gilbreth, a Life Beyond "Cheaper by the Dozen,"* Northeastern University Press.
- Mayo, Elton (1933) *Human Problems of an Industrial Civilization*, MacMillan, New York.
- Moore, Gordon (1965) 'Cramming More Components Onto Integrated Circuits', *Electronics Magazine*.
- Mulvey, Laura (1975) 'Visual Pleasure and Narrative Cinema', *Screen* 16 (3): 6-18

Qiu, Jack Linchuan (2009) *Working-class Network Society: Communication Technology and the Information Have-less in Urban China*, MIT Press.

Roethlisberger, F J & William J. Dickson (1939) *Management and the Worker: An account of a research program conducted by the Western Electric Company, Hawthorne Works, Chicago*, Harvard University Press, Cambridge, Mass. Twelfth Printing, 1961.

Towne, Henry R (1912) 'The General Principles of Organization Applied to an Individual Manufacturing Establishment', *The Efficiency Society*. Transactions, New York (1): 77–83.

Trahair, Richard C. S. (2005/1984) *Elton Mayo: The Humanist Temper*, Foreword by Abraham Zaleznik, Transaction Publishers, New Brunswick & London.