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Rating the Revolution:

Silicon Valley in Normative Perspective

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Abstract

Silicon Valley, California, home of Apple, Facebook, Twitter, Google, etc, is widely regarded as the epicentre of the information revolution. However, it is not just a technical or economic phenomenon; it has also made a social revolution. The article evaluates Silicon Valley from a normative perspective, seeking to identify its real societal impact, negative as well as positive. A select review of significant literature is followed by exposition of primary data, based on in situ face-to-face interviews with Valley occupants; these range from the chief technology officer of a global brand to a homeless, unemployed Vietnam veteran. The article organises its findings under three headings: the nature of information revolution; iCapitalism as a new technoeconomic synthesis; and the normative crisis of the information society. It concludes with a warning about ongoing attempts to clone Silicon Valley around the world.

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Introduction

> People started getting together and exploring the idea that there was going to be a revolution in technology which was going to change society so drastically (Steve Wozniak quoted in Lyon, 1988, p. 1)

Silicon Valley is regarded, even by its critics, as the epicentre of the information revolution; it is 'the home of high-tech man' (Forester, 1989, p. 50) and 'the heart of the information society' (May, 2002, p. 64). California's Santa Clara County brokered core breakthroughs in semiconductors and silicon chips—hence the nickname, now standard descriptor, 'Silicon Valley'. However, it was the invention and rapid development of the personal computer (PC), in particular, that established the Valley's popular reputation. The PC embodied the idea of a revolution that was not just technological but also, as the epigraph from Apple cofounder Steve Wozniak attests, societal. This insurrectionary, idealistic tradition continues in our own day, in the dynamic worldwide networks of Facebook and Twitter, the retrieval revolution of Yahoo! and Google, and innumerable other sociotechnical innovations. At the symbolic level, there appears to be a straight line from Apple's famous '1984' tele-ad, depicting a lone discus-thrower smashing the image of Big Brother, to Google's anti-establishment motto 'Don't be evil'. So while it would be absurd to claim that Silicon Valley ever had a complete monopoly on information revolution, it is plausible to assume that the site should be a focus of any appraisal of the social impact of 'high' technology.

In this article, I seek to explain and evaluate the information revolution and its political outcome, the information society, through special reference to Silicon Valley. I do so not only by calibrating significant prior perspectives but also by interviewing some of the revolutionaries themselves, to discover what key actors believe about the social implications of their work, as well as some neutral and unsympathetic local observers. I shall argue that, while talk of 'revolution betrayed' is too strong, there is much to trouble any social conscience about what Silicon Valley is generating. Specifically, it has produced a new form of information capitalism, or iCapitalism, that combines rawly mercenary, even piratical, elements with countercultural ideals of both a libertarian and a socialist character. However, far from being unstable, as critics hope, iCapitalism is a durable and increasingly influential compound, and as such arguably constitutes a standing refutation of Daniel Bell's (1996 [1976]) claim about the 'cultural contradictions of capitalism', and possibly even of the entire Weber thesis. Paradigm shift has come at a high price, however, in the form of crossed boundaries, precipitating thereby a conflicted 'state of exception and dispossession' (Jakobsson & Stiernstedt, 2000), or what I prefer to call the normative crisis of the information society. With such effects going far beyond the local, the article concludes with a warning about the risks involved in ongoing political efforts to clone Silicon Valley in other countries.

Prior perspectives on Silicon Valley

Like much commentary on the information age, the literature on Silicon Valley tends to be strongly partisan. For some it approximates utopia. A newcomer from Washington, DC, for example, discovers 'a shared set of attitudes, values, goals, and practices', the set being overwhelmingly positive, expressive of a 'help thy neighbour' mentality (Piscione, 2013, pp. 5, 7). 'This culture of mavericks'

expressive of a "help thy neighbour" mentality (Piscione, 2013, pp. 5, 7). "This culture of mavericks", Deborah Piscione proceeds, 'is more interested in moving the needle forward than following the path of tradition' (p. 10). She is confident too that the basic social order there is just, in the sense that 'Silicon Valley is a meritocratic culture that rewards innovative ideas, independent thinking, and hubris' (p. 13). And she sees it as geared to the future, a function of its 'commitment to continuous innovation and a culture of creativity—those quintessential twenty-first century values' (p. 212).

A similarly optimistic perspective pervades a popular history of Silicon Valley. Arun Rao (2013) describes it as nothing less than 'magical' (p. 10). Its most important ingredient, this author concurs, is its 'creativity', alongside 'individualism' and 'risk-taking'—the 'spirit of the Wild West' (pp. 10-11). Silicon Valley, Rao emphasises, has 'a unique, almost evil, knack for understanding the socially destabilizing potential of inventions and then making money out of them' (pp. 12-13). He subtitles his tome, echoing a local venture capitalist, 'the greatest creation of wealth in the history of the planet' (p. 14). But Rao, like, as will be confirmed below, most other authorities, believes that its ethos is not reducible solely to money. Silicon Valley is also 'a state of mind', according to another venture capitalist (p. 16): 'the most motivated [entrepreneurs] have a vision for what they want the world to be…They work because they have a dream to change the world' (pp. 26-27). There is socioeconomic inequality, admittedly, but to Rao's mind even this works well: the 'middle caste' of engineers and the 'low caste' of security men and cleaners coexist happily with the 'upper caste' of rich entrepreneurs because they hope that their own children will get rich too one day (p. 375). Indeed, Rao concludes, Silicon Valley has pulled off the remarkable feat of delivering socialism to California. 'The net economy', as he puts it, 'had created created production tools that were available for free to everybody. That was precisely Marx's definition of socialism: the collective ownership of the means of production' (p. 471).

Such eulogies have been balanced by a vocal tradition of academic criticism. The first important contribution was Everett Rogers and Judith Larsen's *Silicon Valley Fever: Growth of High-Technology Culture* (1984; see also Rogers, 1986). Published in that fateful year 1984, home-computer ownership in the Valley was deemed 'extraordinarily high' at *circa* 25 per cent, as opposed to 8 per cent nationally (p. 171). These communication scholars were particularly impressed by the culture of openness, the way that 'information-exchange is a dominant, distinguishing characteristic' (p. 79). However, their ethnographic study brings into focus the downsides too, particularly the 'distinctive lifestyle and work-style' of 15-hour days and 7-day weeks (p. 29); 'talk to virtually anyone in Silicon Valley', they relate, 'and you hear about the long hours' (p. 137). This work ethic, they argue, is problematic. Its negative effects were already apparent: burnout, absence of women in top jobs, high divorce rates, etc (pp. 142-153). 'The basic change, of being married to one's work', they deduce, 'brings on a set of alternatives in how people live' (p. 155).

In fact, Silicon Valley Man lives basically selfishly: he disregards ordinary interpersonal relationships, lacks culture and religious or philosophical commitment, and exhibits 'an almost complete lack of concern for social, civic, or charitable activities' (Rogers & Larsen, 1984, p. 181). And at the

macrolevel his habitat suffers from inequality between north and south, exploitation of third-world immigrants, lack of infrastructure, and pollution, all obvious manifestations of 'single-minded devotion to self-interest at the expense of the common good' (p. 202). It is, in short, 'supercapitalism', or 'high-technology capitalism run wild' (p. 274). However, Rogers and Larsen, exhibiting an ambivalence that often marks even the information society's critics, conclude on a highly positive note:

> Information is the Valley's resource. Silicon Valley created and developed a system for producing something valuable from virtually nothing. Although it moves with fits and starts, the high-technology system works. If we nurture this system, it can thrive and be shared. When a system runs on information, there is an endless supply for everyone. (p. 276)

Another perceptive early commentator was Theodore Roszak. In his *Cult of Information* (1994), Roszak, coiner of the term 'counterculture', also acknowledged the idealism that drove the pioneers during 'the heroic age of the microcomputer' (p. 141). He recalls the socially-divergent types around the Home Brew Computer Club (to which both Bill Gates and Apple's founders belonged), and the Valley's local journal, the *Whole Earth Catalog*, whose mission was to be 'an outlaw information service' that 'might change the morals and manners of the market place' (p. 145). Silicon Valley, at that stage (i.e. the 1970s) combining 'bucolic reversionism' with 'technological utopianism', was 'unique in its determination to synthesize these seemingly unique images' (p. 146). The PC, many believed, would 'undergird a new Jeffersonian democracy based, not upon the equal distribution of land, but upon equal access to information' (p. 147); it would thus 'usher in the postindustrial promised land' (p. 149).

What is especially interesting about Roszak's analysis of Silicon Valley is that it is embedded in a more general critique of the new approach to information. It is not computers per se that are the problem, he explains, but 'the concept to which the technology has become inextricably linked in the public mind: information' (Roszak, 1994, p. viii). What had once been a modest term denoting factual propositions had become, through the 'esoteric redefinition by the information theorists', a catchphrase, indeed a 'godword' to which a 'cult' had become attached (p. xiv). Roszak attempts to trace its deleterious effects across key social domains, such as commerce, state, artificial intelligence, and, particularly, education. Like all cults, the cult of information is dangerous because it militates against rationality, or as the subtitle of his treatise has it, 'the true art of thinking'. It is only fitting that Roszak should pinpoint California, notorious for its spiritual and pseudo-spiritual novelties, as the source of the problem.

Another effective radical critique is Richard Barbrook and Andy Cameron's 'Californian Ideology' (1996). Much as Karl Marx had done in *The German Ideology* and elsewhere, they seek to unmask the main features of what they deem to be a prevalent form of false consciousness. The timing of their onslaught was significant. 'At this crucial juncture,' they wrote in 1996, 'a loose alliance of writers, hackers, capitalists and artists from the West Coast of the USA have succeeded in defining a heterogeneous orthodoxy for the coming information age: the Californian Ideology' (p. 46). 'This new faith', they continue,

> has emerged from a bizarre fusion of the cultural bohemianism of San Francisco with the hi-tech industries of Silicon Valley. Promoted in magazines, books, TV programmes, websites, newsgroups and Net conferences, the Californian Ideology promiscuously combines the free-

> wheeling spirit of the hippies and the entrepreneurial zeal of the yuppies. This amalgamation of opposites has been achieved through a profound faith in the emancipatory potential of the new information technologies. (p. 46)

The central implication of their argument is that this bizarre compound is unstable. Its 'precepts' suffer from 'ambiguity', an 'eclectic and contradictory blend of conservative economics and hippie radicalism' (Barbrook & Cameron, 1996, p. 47). The only element that holds it together is a visceral antistatism, a tenet of the New Left as well as the New Right. Barbrook and Cameron point out, however, that whatever the rhetoric—'connected individuals in virtual communities' for the left, an 'electronic market-place' for the right (p. 48)—the reality is that big government subsidised the information revolution, especially in Silicon Valley, by massive defence-department contracts. Proponents of the Californian Ideology also mislead by suppressing negative aspects. 'Their utopian vision of California', they write (p. 58), 'depends upon a wilful blindness towards the other—much less positive—features of life on the West Coast: racism, poverty and environmental degradation'. A decade later Barbrook (2007) could write that 'post-Fordist neo-liberalism: the Silicon Valley model' had become a global brand (p. 262). Thus, it is no longer just a Californian ideology, but 'the fetishised

ideology of the [entire] information society' (p. 270).

Manuel Castells (2010) is the latest major information society theorist to comment on Silicon Valley. 'If', he writes, 'the first Industrial Revolution was British, the first Information Technology Revolution was American, with a Californian inclination' (p. 61). While acknowledging other venues such as Japan, he sees Silicon Valley as the revolution's 'most notorious seedbed of innovation' and its 'technological Mecca' (pp. 62, 64). He too registers the crucial catalytic role of military spending in 'the formative stage of the information technology revolution; that is between the 1940s and the 1970s' (p. 68). Since then, he concedes, the main player has been the innovative entrepreneur, 'driven by passion and greed' (p. 69): together, state and market have generated nothing less than a 'new socio-technical paradigm' (p. 69).

Elsewhere, Castells and Himanen (2002) suggest that 'within the same techno-economic paradigm (informationalism) there is considerable room for political choice based on values' (p. 10). Finland, among other Scandinavian countries, combines a competitive, hi tech economy with the traditional goals of full employment, social democracy and a welfare state. 'The Finnish experience', they feel able to infer, 'shows that the Silicon Valley model is not the only way to build an advanced information society' (p. 151); in this sense, 'Finland stands in sharp contrast to the Silicon Valley model' (p. 167). They also contrast industrial society's 'so-called Protestant ethic' with the new work culture of the 'informational economy', featuring not suffering and routinisation but creativity and sociality (p. 46). Hackers, they claim, exemplify this. 'The hacker ethos', Castells and Himanen write, 'which reminds us that there are other values besides money, is an important balancing force for the spirit of the new economy and gives Finland a different social tone from Silicon Valley' (p. 73).

The question of work and its role in the information society, of money and other values, and of 'social tone', as well as other key issues that these contributions have identified, will be pursued below. What is essentially clear from this select review is that Silicon Valley, whether one likes it or not, has been registered as the centre of a technoeconomic revolution, now spreading outwards across the world, with major societal effects and implications. It raises a host of profound normative problems,

most of which still need to be properly understood. The next section reports primary data which provide further evidence upon which to proceed with that urgent task.

Interviews with Valley insiders and outsiders

Despite its background role in so much information society commentary—as utopia, dystopia or something between those poles—Silicon Valley is not often the target of actual fieldwork. The present writer sought to fill that gap by means of in situ face-to-face interviews with a wide range of informants. Using a research grant from the Carnegie Trust for the Universities of Scotland, these were conducted in May 2014, mainly at locations in the Valley's heartland such as Mountain View, Palo Alto and Los Altos Hills, although in several cases to the north in Marin County or San Francisco itself. For orientation, observational visits were also paid to various typical establishments, including a 'coworking space' (computer facility), a multicultural church, and the campuses of Stanford University and some leading tech companies.

Appropriately enough, my first informant was Howard Rheingold, the 'first citizen of cyberspace' (Paul Saffo quoted in Brockman, 1996, p. 245). Rheingold was an early adopter of The Well (Whole Earth 'Lectronic Link), the original 'virtual community', a term he coined—i.e. what is called now a social network. He thus easily qualifies as one of the 'digerati', persons 'who have a tremendous influence on the emerging communication revolution surrounding the growth of the Internet and the World Wide Web' (Brockman, 1996, p. xxxi). However, Rheingold made very clear the dual

and the World Wide Web" (Brockman, 1996, p. xiii). However, Rheingold made very clear the dual nature of this revolution:

> The counterculture was about thinking for yourself, personal empowerment, [and] the computer was about that; you could call it socialism. [However], the military-industrial complex [also based here in the Valley] was motivated by [very different] ideals, of national security and [US] freedom...Without a doubt, [there are idealists], like Doug Engelbart, Steve Jobs and [now] Elon Musk, but it's an idealism inside the framework of capitalism.

Computers, he noted, involve 'large-scale manufacturing and selling'. He compared Google to industrialist Henry Ford, who 'had the radical idea that he wanted to make automobiles [that] the people who worked for him could afford'. It is, Rheingold suggests, 'awfully hard to see [the information revolution] through a simple left and right lense'; it is 'not either or'.

Rheingold sounded a sombre note about recent developments, especially regarding surveillance:

> Privacy was over quite a while ago. Society did not care that the trajectory of digital media was going to include surveillance; there was never the political will to resist it. Everyone could have started using encryption but didn't. [The surveillance state] is not inevitable, it's already happening! There has been no Chernobyl of privacy, not even [as a result of the Edward] Snowden [revelations].

Rheingold believes, however, that 'where there is power there is also'—he cites Foucault—'counter-power', so 'people will find their ways to resist', a theme developed in his latest book, *Net Smart* (Rheingold, 2014). While registering the 'arms-race' in 'generating information' conducted by

Amazon, Apple, Google and the like, he concludes that he 'fear[s] the state more than corporations'. This judgement would emerge as a key theme in the interviews.

Another distinguished informant was James Gosling, credited with the original development of the Java programming language, the so-called 'Esperanto of the Internet' (Rao, 2013, p. 355). Gosling acknowledged that other locations have played a role in the information revolution, but 'more has happened here than in any other place': that is what drew him to Silicon Valley 30 years ago. He expresses a strong belief in cooperation, 'the optimal system where interaction is frequent'; the company for which he used to work, Sun Microsystems—pioneers of computer networking—made such a philosophy possible:

> Computers networks are bidirectional; TV was one-way. The cable companies [initially] hated the whole concept of the internet, because their whole model was about controlling information...Sun [on the other hand] was a bunch of crazy hippies, pretty idealistic.

Like Rheingold, however, he is realistic about the mixed motives behind Silicon Valley's dramatic rise:

> You couldn't measure the ratio of mercenary [elements] and idealism. It [idealism] is still going strong, but they work together; you can't be idealistic if you are starving. A lot depends on how the company is doing; if it's doing well, it can afford to be idealistic.

As for the normative issues of the information age, such as privacy and copyright, Gosling is a practical idealist again. 'Absolutely, totally, these should be debated', he advised. 'I'd like to see some level of [involvement]. I'm not sure that regulation is the right phrase, but there should be a statement of principles, a bill of rights'.

Skip Vaccarello was also involved at an early stage, performing successfully as vice-president of

Skip Vaccarello was also involved at an early stage, performing successfully as vice-president of operations for Visicorp, whose main product was VisiCalc, the first popular computer spreadsheet and the app that secured Apple's success (Isaacson, 2011, p. 84). Now a consultant—'almost a Valley euphemism for someone who isn't working full-time' (Rogers & Larsen, 1984, p. 154) —Vaccarello believes that Silicon Valley is the 'centre of information technology'. Arriving from Boston in 1979, he sensed immediately that the atmosphere—the social tone—was different; back home the 'heroes were sports-people or politicians, [while] in the Valley it was the people who led companies.' He agreed that there was 'a desire to change and improve the world'. However, Vaccarello, a graduate of Harvard Business School and arguably a classic 'organisation man', brought a more hard-headed approach: VisiCalc was controversial for being one of the first copy-protected programmes.

The pace of life in Silicon Valley, he reported, is getting quicker, but has long presented problems:

> The West Coast image is deceptive. People work really long hours here. I advised someone recently who was worried about this. Yes, there is excess in many ways in the work ethic...My wife almost felt ostracised when she stopped working to have children.

Vaccarello too is concerned about privacy issues, the 'tracking of what we are doing', but sees this as just the normal way that business works, 'making money out anything, including information'.

'Boundaries are clearly violated' by corporations, he concurs, but his 'bigger concern is the government'. Of course, that begs the troubling question of the extent to which government and industry in the Valley still overlap, both openly, as in intelligence-agency and military funding, and secretly (see, e.g., Dembosky, 2013).

Several of the major current brands (as well as some prominent technology journalists and think tanks) declined interviews. However, one top company did offer up their chief technology officer (CTO, next only to CEO in Valley pecking order), albeit only under condition of anonymity and with a press officer present. Asked directly if he—CTOs are still mostly males—sees himself as an information revolutionary, he replied:

> Not on a daily basis, but sometimes when people use our technology for social benefit, for example when it helps to expose government misconduct...New models of communication are being created, with advantages over the old mass media, such as the ability to transfer [information] with perfect fidelity. This has the potential to change the way human communication works in as large a way as the Gutenberg revolution.

While acknowledging Japanese and Chinese excellence, this informant sees Silicon Valley as still the home of this revolution, 'just as you'd go to London or New York for finance'. The CTO was thus optimistic about the Valley's agency in social change, but, on pressing, was honest enough also to admit negatives, such as the questionable copyright behaviour of some information corporations. 'At what point', he sharply asked (without naming Google), 'does an index become essentially a copy?' He too acknowledges the privacy threat, 'the dark pool of [personal] information' being exploited by 'ad brokers'. He even confesses to worrying about the economic poverty still visible in parts of the Valley. However, he has full confidence in markets to solve the problem, not least the way that his own company was 'creating hundreds of new, well-paid jobs—jobs where you use your brains'. The answer, emphatically, was not the state; he is thus another typical 'technolibertarian' (Borsook, 2000, p. 4).

Another experienced engineer, Larry Cable—the name is real, as are all others in this article—has worked for numerous companies, in the Valley's tradition of frequent job-shifts. An expatriate Scot, he ranks Silicon Valley as 'definitely the most influential location', appreciating its 'higher calibre of

people', and its being a 'meritocracy' that is also 'a little bit anarchic'. However, he was loquacious about the disadvantages as well. He professes himself to be 'sceptical' about the 'business models' of some of the newer startups; in any case, he rates himself 'too old' to get a job there. As regards their business ethics, he states that 'clearly at some level business models based on extracting as much personal data as possible are at odds with personal privacy'. He deprecates the 'patent wars that rage on in the background all the time'. He is increasingly concerned too about the human impact of technology, for example about the fact that the number of face-to-face meetings was becoming 'vanishingly small'. He also showed himself very keenly alive to the breakdown of the barrier between work and play:

> I'm old-fashioned. I'm sympathetic to the French [view] that unless lives are at risk [one should not cross that barrier]...I see emails flying past on Sundays. I feel compelled to join in, but I know that if I do I won't be able to extricate myself.

Cable's impeccable track record at businesses of the calibre of Amazon, Salesforce.com and Oracle should prevent his becoming, as a result of this brave stand, one of those 'derided as not being "team-players"' (Borsook, 2000, p. 156).

Danese Cooper, another candid on-the-record informant, is a well-known open source activist, so much so that she carries the sobriquet 'Open Source Diva' (at least according to Wikipedia). For Cooper too there is an idealism: 'absolutely—that is why there are more nonprofits per square inch in the Valley than anywhere else in the country' (Wikipedia being one of them). 'It is possible to do well and be idealistic too', she says; 'you don't have to sacrifice your values'. With experience at various leading brands, she now works for PayPal, which she joined specifically to implement her open source philosophy:

> I'm thinking [that] we might be able to do something to enable economic refugees to send money [home]. They don't want records; they want to stay anonymous...I went to PayPal because I wanted a longer runway, to try to do something big about closing the digital divide; utopian schemes are [too] slow.

However, while Cooper thinks that there is still 'headroom' in the Valley for ideals, she thinks that this is less the case than in the past. She believes that too many 'Harvard people' have come in, with a more mercenary motivation than 'Stanford people'; she 'probably could not work for [Harvard-born] Facebook'. Even Apple, which started out self-consciously ethical, had become 'all about survival', and 'lost all of that loveliness'. Cooper was indeed part of a collective lawsuit against Apple, Google and other members of a cartel found guilty of conspiring not to hire one another's key staff, thereby illegally depressing their salaries and career prospects (Liedtke, 2014).

Two local academics were also interviewed. Fred Turner, a Stanford communication scholar originally from the East Coast, has been in Silicon Valley for 12 years. An authority on the historical relationship between the counterculture and the computer industry (see Turner, 2008), he opined that 'no one is really from here': 'California is where you go if you want to do something that doesn't fit in anywhere else'. He supports the theory that Silicon Valley harbours a dual motivational structure:

> Without a doubt, idealism is very strong. Some of the earlier tech engineers may have become disillusioned, but the faith is very much still here. There's a fundamental notion that community is something you can build by providing technology so that you can exchange messages. The two things go together: of course, people want to make serious money [but] people [also] genuinely want to change the world.

Turner identified also the religious roots of the Valley's work ethic, both the Protestant idea of

'success as manifesting God's blessing', and the role of Catholicism, including the little-known influence of Santa Clara University—this is, indeed, a predominantly Catholic area. However, he seems more aware than most locals of the social consequences of all this adventurism. 'When we think about Google', he points out, 'we think about engineers, not kitchen workers who are on the minimum wage, not earning enough to get health insurance'. Then there is physical pollution, both locally and in the supply chain abroad. 'The face of capitalism [here] is beautiful', he agrees, 'but underneath? We have no language for that in Silicon Valley'.

Another interviewee was Jan English-Lueck, a senior anthropologist at San Jose State who specialises in the ethnographic study of Silicon Valley (see especially English-Lueck, 2008). She is very clear about the normative mix, albeit without herself passing judgement:

> Work is such a dominant value in the Valley. [It prizes] efficiency, productivity, time-consciousness, [and] an engineering mind-set. There's [also] still a countercultural nudge, a sense of mission. Sometimes there is a tension between efficiency and [other values like] sustainability, [but] if you find a culture that has no contradictions, you haven't seen it all yet.

English-Lueck had once interviewed a woman who changed her religion in order to get her husband home just one day a week. However, English-Lueck declines to condemn the dissolution of the work-home barrier, which 'is only news if you think of the industrial revolution—prior to that, cottage industries were the norm'. Even on privacy, she is emollient:

> [Information corporations] might be compromising privacy, but it's evil only if you consider privacy a good. They have an intense respect for empiricism that transcends their respect for privacy. For their part, they believe that if you want to improve the world, transparency is the way to go about it...In Silicon Valley, there's at least an attempt to democratise the world with information.

English-Lueck hoped that this, if not the 'always-on behaviours', could be 'replicated around the world'.

The perspectives of 'ordinary' people were also sought. Eddie Kissack, who described himself as a recently-retired 'building contractor', recalled the heady atmosphere of the late 1960s:

> Suddenly there was something different, spontaneous things, going on in San Francisco. In 1967 to '69, in particular, there was a social idealism, prophets who had utopian ideas, [such as] that civilisation would be changed by taking these pills...It was just never going to be embraced by the whole society.

Although Kissack did not have links with the computer industry, he referenced Fairchild Semiconductor and Hewlett-Packard, alongside the Black activists and Merry Pranksters, as key players of that era. Kissack used to purchase goods advertised in the *Whole Earth Catalogue*—widely seen as an inspiration for *Wired*. High tech was part of the whole countercultural 'vision'. But he has not forgotten the 'dark side' either, the drug addiction, Altamount, etc. For good and ill, he concluded, 'we still feel the ripple effects from those few years'.

The final interviewee subsisted outside the system in a much more literal manner. I met Herbert Freeman, an unemployed 63-year old originally from Texas, at a railway station in an underprivileged neighbourhood of Mountain View; he claimed, plausibly, to have 'slept on these tracks for 30 years', although now in council accommodation. Freeman supplied a completely different perspective:

> If there is any justice here, how come we [Blacks] never benefit from it? My grandmother, who

> still lives in Menlo Park [home of Facebook], worked for 10 cents an hour; I never knew my mother. 'We [America] have justice for all': well, kinda funny I can't say that, and there are 50 million other people behind me...All our people that dug deep into society, like Malcolm X, are dead.
>
> Silicon Valley in no way escaped the strictures of this Vietnam War veteran:
>
> We have people walking around with experience, who can't make it. I was in communications in the military. Are you telling me [that] I'm not eligible [for jobs] round here? These people in Silicon Valley are selling our secrets, yet they don't trust me [enough to hire me]!

Worst of all, the good jobs were now going to 'the influx', the very Vietnamese and Chinese Freeman had fought against. And information technology was not a solution at all. 'If bread is not for everyone', he opined, 'you have not succeeded, same for computers'. With a documented history of marginalisation (Ruffin, 2014), and even the most recent survey revealing that 'Facebook, Google, Twitter and Yahoo! each has only 2 per cent Black employees, even though Blacks make up 12 per cent of the US workforce' (Swartz et al., 2014, p. 8A), such heartfelt protests cannot be discounted.

General themes and problematics

Building now on these primary and secondary materials, I will try in the final section to tease out the most important messages, in order to secure a deeper understanding of the information revolution and its implications. Hopefully, it will then be possible to make a few small advances towards solutions for some of the normative problems facing the information society as a whole.

The nature of information revolution

The present article, like most literature on Silicon Valley, assumes the information revolution as its major premise. However, the concept is far from being as well-established as the industrial revolution upon which it is usually modelled. This is hardly a matter for self-reproach: it was not until 1886 that the term 'industrial revolution' was itself invented (Bell, 1999 [1973], p. xii)—long after that revolution's heyday. In this subsection, therefore, I seek to shed light on the information revolution's nature, using concrete data to reinforce a currently rather abstract claim.

The main point of which we can now be certain is that Silicon Valley *sees itself* as the site of information revolution. For some actors, especially in the pioneering days, this consciousness was explicit and evangelical. 'We were participating', Wozniak has been further quoted as saying (Isaacson, 2011, p. 69), 'in the biggest revolution that had ever happened'. His late colleague Steve Jobs placed himself firmly in the vanguard, holding that 'a lot of times, people don't know what they want until you show it to them' (quoted in Rao, 2013, p. 246). These Apple founders, if any, exemplify the class of 'information revolutionaries', 'visionaries' whose mission was to 'build technologies to free people of the industrial age systems that turn them into tools' (Brate, 2002, pp. 1-2). While my own informants tended to speak in less grandiose terms, it is evident that they too—the executive taking tradeshows by storm with VisiCalc, the programmer donating his universal language, the open-source activist wanting to liberate international transfers, etc—feel themselves to be soldiers in an ongoing revolution.

Exactly what type of revolution is it, however? Most obviously, it is a technical one, executed with bits, algorithms, code, telecoms, expert systems, AI, even genetics, and covering everything from

the acquisition and storage of data to retrieval, distribution and consumption. Silicon Valley has been at the centre of the advances in both hardware and software in all these respects, creating many of the devices that have changed our lives. As noted above, it gave us the semiconductor, the silicon chip upon which the whole of modern computing is based; it also gave us the 'user-friendly' PC, an enabling technology of vast significance, like the printing press. And while the Valley did not invent the internet, it more than anywhere else exploited it, in domains such as search and social networking. Moreover, although much less well-known to the general public, many of its seminal achievements were business products, the source of some of the great fortunes, such as that of Oracle. So Silicon Valley has unquestionably been the matrix of a smart revolution, part of the 'soft edge' (Levinson, 1998, p. 201).

The more important way in which Silicon Valley has made a revolution, however, is not in technology so much as in information itself, in what, as it were, it puts on its chips. More than any other entrepreneurial cluster, the Valley has taken advantage of the basic resource of the epoch, namely, information. It has had the acuity and open-mindedness to see the potential of information, much as an earlier generation rushed to exploit California's ample gold deposits. Arguably, it is because it has grasped this best that Google, with its stated mission 'to organise the world's information and make it universally available and accessible', has emerged as the strongest player in the information revolution. One might even say, borrowing Roszak's vivid language, that Google is cult-leader of what is now a worldwide 'cult of information'.

However, it is also by its social and cultural effects that the information revolution has to be judged. Here, of course, we encounter the information society thesis itself, the set of claims, advanced by Bell, Castells and others, to the effect that information and technology have fundamentally turned industrial societies into post-industrial information societies. Most of the data pertaining to Silicon Valley support such claims; indeed it is hard to imagine that there is anywhere else that 'that sense of living in interstitial time' (Bell, 1999 [1973], p. 37), of being on the cusp of socioeconomic metamorphosis and of feeling already the reverberations of a seismic shift, is stronger. I shall suggest below that the impact already observable in the Valley amounts to nothing less than a normative crisis, and that since Silicon Valley's work-styles and lifestyles, not just its technologies, are being exported around the world, this dimension of its insurrection must concern us all.

Some say that because political power has not yet radically shifted it is not really a revolution, or that it is only 'the revolution of a fixed wheel' (Webster & Robins, 2004, p. 79). But that is a poor thesis. Even if it were true that Silicon Valley gadgets and apps (among those invented elsewhere) have not been a factor in political upheavals—and more than one deposed Eastern autocrat would presumably beg to differ—the privileging of the political is hardly cogent. The industrial revolution was not political, at least not directly, but economic and cultural. One could indeed argue the antithesis, that, as with the industrial revolution (and the agricultural revolution prior to industrialisation), it is precisely because it is economic and cultural rather than merely political that the information revolution is so definitive. At a stretch, one could even argue that it is precisely because political revolution fails that the smart money goes on social revolution. To adopt terminology generally associated with that greatest of twentieth-century revolutionaries, Leon Trotsky, the information revolution (unlike his Soviet experiment) is likely to be a permanent revolution.

However, another phrase for which Trotsky is remembered poses a question that needs to be

faced. Exiled by Stalin, Trotsky wrote his polemical treatise, *The Revolution Betrayed* (1937). There are many, including some of my respondents, who maintain that whatever was noble and, in Cooper's language, 'lovely' about Silicon Valley has been, if not lost, at any rate diluted, in recent years. As she put it, a Harvard (materialistic) mentality has tended to elbow out a Stanford (more idealistic) one. Even Rao (2013), although his historiography sometimes borders on hagiography, noted a deterioration over time, with 'the psychology of the high school' now instead of 'intellectual idealism' (p. 473). Indeed, some of the company people, the revolutionaries themselves, admitted to doubts. We seem thus to be getting further and further away from Yoneji Masuda's (1981) utopian vision of the information society as 'a flourishing state of human intellectual creativity, instead of affluent material consumption' (p. 29). Yet it must be remembered that even The Well, the original online community, made a tidy profit. As we have heard from everyone, the goal was indeed to change the world, but to make money at the same time; it is *within* capitalism, not outside of it, that the good society will apparently be generated.

iCapitalism: A New Synthesis?

Arguably, the key innovation to have emerged in Silicon Valley is not a technology at all, whether physical or intellectual, but a new form of capitalism. In this subsection, I shall try to describe this entity and to briefly assess it. I begin by giving it a name. One might think that Silicon Valley's capitalism should be called technocapitalism or some variant thereof. However, in accordance with what has been suggested above, the more appropriate term would be information capitalism, or, for short, iCapitalism. This term is well-established as a generic descriptor, but the Silicon Valley species, I wish to argue, has some very peculiar features. It is about the commercialisation of data and the commodification of information, to be sure, but there is more to it than that.

As we have seen, many commentators have registered the Valley's crossover between entrepreneurialism and the countercultural values of '60s San Francisco. There is a danger in treating the situation monolithically (and pejoratively), as in 'Californian ideology', but there can be no doubt that what has gelled is an unusual mixture of standard capitalist practice—profit-seeking, efficiency, the economising mode—and idealism—sharing, community values, the sociologising mode; in Habermasian language, of both strategic and communicative action. One does not encounter such a combination in other business clusters, in, say, Scotland's Silicon Glen, or in Wall Street and other nodes of the networked neoliberal system. The Valley's iCapitalism, like the iMac and other Apple products (Isaacson, 2011, p. 348), has a different 'look and feel' from ordinary capitalism. It is more ludic, led by corporations with playful, almost infantile, names like Google, Twitter and Facebook. Indeed, the most powerful 'cult' in Silicon Valley may well be San Francisco's notorious cult of youth: that would explain its creativity, its energy—and its touch of anarchy.

This raises an important theoretical question. According to Bell (1996 [1976]), post-industrial society is marked by the 'cultural contradictions of capitalism'. His point of departure was Max Weber's *The Protestant Ethic and the Spirit of Capitalism*, 'probably the most important sociological work of the twentieth century' (p. 287). The Weber thesis maintains that western capitalism depends on the support of Protestant values, such as strict morality, discipline, delayed gratification, etc. These values, for Weber, create the manly character structure that can succeed in the market-place. However, according to Bell, the values of postmodern culture—in his schema, culture and economy are

separate realms—are no longer providing that support. Hedonism has replaced restraint; the

concept of duty, the whole sense of a 'calling', has vanished (pp. 33-84). Bell does not mention Silicon Valley, but if anywhere is a testbed for his own thesis, Silicon Valley is surely that testbed.

Yet we do not see anything remotely like a breakdown of capitalism. On the contrary, we witness a form of capitalism, of what I am calling iCapitalism, that looks as vigorous as anything seen since the early nineteenth century. Far from being vitiated by its 'alternative' value system, or sapped by the influx of 'nerds, geeks, etc' (Rao, 2013, p. 305), Silicon Valley, powered not by steam but by information, gives every appearance of being in the process of conquering the whole world. I cannot pursue the matter further here, but perhaps we are observing the refutation of the Weber thesis itself, or at least its recasting in terms of a new form of 'protestantism' (student protest?). (In the late '60s, the term 'user-friendly' had a second sense in the Valley, denoting companies which tolerated drug use (Rushkoff, 1994, p. 48); presumably the same goes for 'high' tech.)

It is capitalism, therefore, but not as we have known it. Is it also then a *good* capitalism, the just meritocracy that was meant to accompany the coming of post-industrial society (Bell, 1999 [1973], pp. 451-455)? Not surprisingly, Piscione and other insiders think so. Originality, risk-taking, and graft are followed inexorably by wealth, admittedly sometimes superlative wealth: virtue gets its due reward. However, for its critics, iCapitalism reflects all that is wrong with an economic system: ruthlessness, social irresponsibility, outsourcing of dirty work, disproportionate rewards, endemic racism and sexism, anti-unionism (Rogers & Larsen, 1984, pp. 190-191), even brazen piracy and illegality (Dilevko, 2014). Indeed, far from being the outworking of a rational order, Steve Fuller suggests (1999, p. 162), Silicon Valley can be seen as 'supplying the material substratum' for the chaos of the postmodern condition itself.

The truth, probably, lies somewhere in the middle. While it is risible to claim that a simple, arguably stolen, idea plus a few years' hard work could morally validate Mark Zuckerberg's multiple billions, it would also be unfair to deny that there is ever a link in the Valley between financial outcomes and ethically-relevant factors, such as, especially, effort. In this way, one could perhaps argue that Silicon Valley at its best represents an imperfect meritocracy. What is certain, however, is that iCapitalism has established itself as a new, and highly stable, technoeconomic synthesis.

The normative crisis of the information society

In this final subsection, I wish to argue that, despite or perhaps because of the potency of its iCapitalism, Silicon Valley is a prime site of the normative crisis facing information societies. The ruthless manner in which some of its corporate leaders have presided over this multifaceted crisis is the surest sign that they deserve the tag of information revolutionaries. It might be objected that it is not legitimate to subject Silicon Valley to a direct normative critique. After all, Silicon Valley was never set up as a self-conscious 'society'; there was no constitutional convention in Palo Alto where delegates agreed on the principles by which they would govern themselves. However, the Valley, as its residents like to call it, is an identifiable community, a physical space with borders, and a peculiar 'state of mind' too. The fact is that Silicon Valley parades itself not only as a successful community but as a mecca, a technopolis, and even it did not, it is perceived by outsiders as such, and not just perceived but imported and duplicated in admiring nations around the world. But the Valley is antinomian in numerous negative ways; I select two.

First is its serious assault on the boundary between work and home. As we saw in both the primary and secondary data, there has from the beginning been a major issue of excessive working-days and -weeks in Silicon Valley, and this has been socially harmful. Even some of the company men admitted as much. The Sabbath, or whatever a day of non-work might be called, is compromised. Family life is undermined, as the divorce rate confirms. One informant had to offer consultancy on the problem. The long-hours mentality is a norm that is out of control, whose inevitable result is alienation, a devastation of ordinary relations. 'In Silicon Valley', as Cohen and Fields (2000) put it, 'no one knows

devastation of ordinary relations. 'In Silicon Valley', as Cohen and Fields (2000) put it, 'no one knows anyone else's mother'; it is a 'Hobbesian world' (pp. 212-213).

Disparaging the industrial revolution, Brate (2002, p. 3) writes that information revolutionaries 'understand that information technology has the potential to reintegrate our private and public spheres by transforming the nature of work...can make work more like private life'. However, the whole point is surely that personal life *ought* to be uncoupled from work: it was precisely this that made the industrial revolution an advance on the cottage industries of the agrarian era. Of course, Silicon Valley work is not necessarily unpleasant. It is not like working the coal-mines of Wales' Rhondda Valley; there are no dark satanic mills. But where is the sense in replacing the iron cage of industrialism with a silky web of informationalism? Where is information technology's core promise of increased free time? And from a public policy perspective, is there not an acute need for an 'Office Hours Act' in the tradition of the nineteenth-century reformers' 'Ten Hours Act'?

The violation of the work-life boundary can be understood as part of a wider breakdown of the social norm of privacy. It is important to register how far this tide has advanced in Silicon Valley. Facebook's data-mining is so exhaustive that even fellow information corporations expressed alarm. Such protests imply that the norm still has some hold, but one wonders when it will be wholly washed away. Google's inroads into personal data are 'only an evil if you see privacy as a good': even the Valley's leading anthropologist seems resigned to an inevitable technocratic destiny. Of course, Silicon Valley is not solely responsible for this normative crisis, but the boundary is being pushed further there than anywhere else, at least in the West. What we are experiencing is basically a growing confusion of realms, the incursion of the technoeconomic realm, with its core principle of efficiency, into the cultural realm, the domain of ordinary human relations. This interpenetration is what causes normative crisis; and it is hardly the kind of 'innovation' that the world needs.

Another disturbing aspect of Silicon Valley's character that has come to light is what might be called its civic apathy. The information corporations reign at the expense of all other organisations and institutions. Silicon Valley is not in the true sense a polis. Even though many of its leaders live there, they are largely apolitical. 'Government service', we know, 'is not held in high regard in high tech circles' (Borsook, 2000, p. 221). Even philanthropy, the least demanding form of civic engagement, is also conspicuous by its absence. There are no great buildings, no monuments, no fine parks. Even religion is suppressed, confined to hurried services once a week or the occasional escapism of a Burning Man festival (Turner, 2009). I did not see white men in their prime walking the streets of Silicon Valley, just the elderly, trophy wives, people of colour. This is hardly the profile of a healthy community. There cannot be a civilisation without civic institutions, without local politics, without public amenities, without joint pursuit of the common good, and without genuine spirituality. A few have drawn their own conclusions and simply left, unable to live with 'Silicon Valley's unique way of combining utopian fervour with blatant dissociation from reality' (Eubanks, 2011, p. 4).

Post-industrial society, Bell pointed out in *Coming* (1999 [1973], p. lxxxv), is oriented to the future, not the past. In one sense this is good, but without rootedness in the moral and religious norms embedded in our culture, without a sense of boundaries, there is a danger of a recrudescence of forms of anomie and alienation. Institutions, such as the family, the mosque or church, the city council, and other pillars of a vibrant civil society, will be weakened, and the individuals who supposedly gain in career terms from this loss will themselves lose out on deeper forms of fulfilment. The individual, while free, will be reduced from being a 'being' to being merely a 'self' (Bell, 1996 [1976], p. 18). This then may be the final judgement on the Valley, albeit a generalisation subject to many noble exceptions: its survivors are not only not good citizens, they are perhaps not even, in a sense, real human beings. If it is not careful, Silicon Valley runs the risk of becoming, so to speak, the valley of the damned.

Conclusion

Silicon Valley deserves its reputation as the headquarters of the information revolution. This is how the world sees it, how the literature, both pro and anti rates it, and what people in the Valley today are saying about it. Revolutionaries by definition create a new 'normal' and that has happened in Santa Clara County, California, USA. They have evolved an arguably new form of capitalism, iCapitalism, that combines idealism, a utopian—even messianic—fervour, with a primitive accumulation that shades into latter-day piracy. They have done things with technology, and more importantly with the new 'gold' of information, that no one else has accomplished. However, in their concomitant dismantling of boundaries between work and home, and between the private and the public more generally, in their repudiation of the good offices of government, both local and national, and in their gospel of untrammeled innovation with scant regard for social consequences, they are accelerating many of the normative crises of the information age, and thereby causing acute legal and public-policy questions. Silicon Valley is moving the needle forward, to be sure, but what kind of needle? At this stage at least, it is unwise to conclude other than that the Valley, while hugely impressive technically and economically, comprises a dubious social model for the future.

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