Cyber-Proletariat

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Global Labour in the Digital Vortex

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Deep Knowledge Ventures

On 13 May 2014, a press release from Deep Knowledge Ventures, a Hong Kong-based venture capital fund specializing in biotechnology, age-related disease drugs and regenerative medicine projects, announced that it 'formally acknowledges VITAL, a crucial Artificial Intelligence instrument for investment decision-making, as an equal member of its Board of Directors'.

VITAL was the product of Aging Analytics UK, a provider of health-sector market intelligence to pension funds, insurers and governments. Developed by 'a team of programmers, several of which have theoretical physics backgrounds', the system 'uses machine learning to analyze financing trends in a database of life science companies and predict successful investments'. VITAL 1.0 was a 'basic algorithm', but the goal was 'through iterative releases and updates … to create a piece of software that is capable of making autonomous investment decisions' (Fontaine 2014). Apparently, however, Deep Knowledge Ventures thought VITAL was already pretty good: it told reporters the program would 'vote on whether to invest in a specific company or not' (BBC 2014).

All this sounded very futuristic. As commentators quickly pointed out, however, it was really 'publicity hype' (BBC 2014). This was not because decision-making algorithms are impossible, but, on the contrary, because their use, often in forms far more complex than VITAL, is commonplace in today's capitalism. Such programs are, for example, central to the operations of the financial sector, whose high-speed multi-billion trades are entirely dependent on algorithms – and whose bad decisions brought the world economy to its knees in the great Wall Street crash of 2008. The press release was a stunt because the future to which it seemed to point exists now.

Whatever interest VITAL's debut may have stirred was immediately eclipsed by more sombre news. On the same day 301 workers died in a

massive explosion at Turkey's Soma coal mine. The mine, once publicly owned, had been privatized in 2007. The disaster was caused by neglect of safety equipment generally attributed to profit-boosting cost-cutting. The miners' charred and choked bodies were pulled to the surface from two miles underground: they would not be needing regenerative medicine and anti-aging treatments, to which, of course, they would never have had access anyway.

Turkish trade unions declared a one-day general strike. At the same time, street protests burst out in Istanbul, Ankara, Izmir and other cities across Turkey. Students calling on the government to resign wore hard hats to show solidarity with the miners. They were met with tear gas and rubber bullets. These protests were a continuation of the social turmoil that had raged intermittently since the occupation of Gezi Park in Istanbul's Taksim Square in May of 2013. That occupation, started to protect a grove of trees from the construction of an Ottoman-barrack themed shopping mall, had rapidly become a focus for discontent with the religiously conservative neoliberal capitalism of President Erdogan's regime. It lasted for 17 days. In some 5,000 related demonstrations across Turkey, 11 people were killed and more than 8,000 injured, many seriously.

Throughout the unrests, protests and criticism of the government had been mobilized through social media, provoking a farcical attempt by the Erdogan regime to ban Twitter and YouTube. This ban, though universally violated, had only been formally rescinded six weeks before the Soma disaster. Now, social media again disseminated news, first of the scale of the catastrophe, initially minimized by the government, and then of the fresh protests: a photograph of an advisor to President Erdogan savagely drop-kicking a demonstrator held down by security forces in the streets of Soma circulated widely (Saul 2014).

The same-day news of the algorithmic boss-entity and the mine disaster was coincidence. Yet it condenses paradoxes and contradictions central to this book. For a start, it starkly highlights the coexistence within contemporary capitalism of extraordinary high-technologies and workers who live and die in brutal conditions often imagined to belong in some antediluvian past. This coexistence is also a connection. Mines and artificial intelligences seem to belong to different worlds, but they are strongly linked. Although only a small part of production at Soma went to power plants, similar coal mines around the planet provide – at appalling, biosphere-endangering environmental cost – the basic energy source on which all digital technologies depend: electricity. Other mines,

for columbite tantalite, gold, platinum, copper rare earths and other minerals, many with working conditions as or more dangerous than those at Soma, provide the materials from which computers are made.

At the same time, computers are being applied not just to the creation of artificial bosses but even more strenuously to the cost-cutting automation of work. From West Virginia to South Africa mining is on the front lines in a new wave of robotization that could wipe away whole tranches of manual labour. The automation of hard and hazardous work underground by drones, driverless trucks and robot drills might seem an unqualified good. Yet for communities with no other source of waged work it does not necessarily appear so simple, for it places them at risk of joining a deepening pool of unemployed populations no longer required by digital capital. This, however, is an issue not just for manual workers, such as miners, but also for intellectual workers, such as the students who donned hard hats in the support of the Soma community. These students might, hypothetically, one day themselves be building artificial intelligences or designing new pharmaceuticals. Yet they too face the possibility that the professional and technical careers for which they train may suddenly be automated out of existence.

In recent years a complex array of revolts around the world against exploitative work, the misery of worklessness, and ecological disasters – revolts sometimes closely allied, sometimes distant from or even hostile to one another – have all thrown into question the basic structures and processes of advanced capitalism. In yet another apparent paradox, such uprisings themselves increasingly use digital technologies. The Twitter-storm of Turkey's demonstrators is just one example of this insurgent use of networked social media, even as such movements also put people bodily into city streets and squares, conversing with each other in popular assemblies and in physical confrontation with security forces. Both in terms of the crises that cause them and the weapons they take up, such unrests are thus situated within capitalism's whirlwind of technological change.

What then is the relation between cybernetic capitalism and its increasingly disposable working class? What are the interactions between segments of that class with different, yet also sometimes shared, relations to information technologies, such as miners and students, extremes of manual and mental labour? And what is the significance of the networked circulation of the revolts which, beyond Turkey, have so widely disturbed

today's algorithmic capital? These are the questions that impel our own 'deep knowledge venture'.

Facebook Revolutions?

Our theoretical point of departure lies in the tradition of autonomist Marxism, so called because of its emphasis on workers' power to challenge and break their subordination to capital (Cleaver 1979; Dyer-Witheford 1999; Eden 2012). In this tradition analysis starts with class struggles, 'their content, their direction, how they develop and how they circulate' (Zerowork Collective 1975).

The revolts at Soma and Gezi Park were only part of a much wider sequence of protests, riots, strikes and occupations that towards the end of the first decade of the twenty-first century had begun to circle the planet. In 2008, Wall Street's sub-prime mortgage crisis, relayed at light-speeds from one financial centre to another by some of the most advanced computer networks in existence, had brought the world economy to the brink of collapse. Immediately, states locked-down into emergency measures – bank bailouts, austerity budgets – to save global capital. Responses from below took time to emerge and were shaped by how the crisis affected specific zones of the system. For if the 'global slump' (McNally 2011) touched the entire planet, it did not everywhere do so in the same way. Some areas fell into economic decline, others stagnated, yet others grew even faster than before but with increased social polarization. Thus the rebellions that sprung up in the wake of the crisis did so in regional clusters, simultaneous or serial, some clearly interlinked, some more apart: Eurozone anti-austerity revolts; a strike wave in China; an Arab Spring and an American Fall; later, in a Winter of emergent markets, uprisings in Brazil, Turkey and Ukraine, yet all together marking a widespread intensification in social antagonisms. A new cycle of struggles had begun.

No aspect of these revolts attracted more attention than their use of digital networks. Reportage of 'Facebook' 'Twitter' or 'YouTube Revolutions' focused on protestors' use of social media and mobile communication. Andrew Sullivan's 'The Revolution will be Twittered' (2009) set the tone, with its allusive repudiation of the anti-media radicalism of Gil Scott-Heron's 'The Revolution Will Not Be Televised' (1971). There was no shortage of examples: the internet relay of news of the self-immolation

of Mohamed Bouazizi, the impoverished street vendor whose death catalyzed popular revolt in Tunisia in 2011; the similar role of the 'We are all Khalid Said' blog, commemorating a young man beaten to death by security forces outside a cybercafé, in the Egyptian revolution; the Mubarak regime's failed and back-firing attempt to shut down internet service as battles raged in Cairo's Tahrir Square; the outwitting of police by smartphone coordinated riots that sent smoke rising over London and other UK cities; the digital circulation of photos of anti-suicide nets hanging outside the Foxconn factories where iPhones rolled off the production lines; the popular assemblies live-streamed between occupiers of Madrid's Puerta de Sol and Athen's Syntagma Square; the internet call to 'Occupy Wall Street' and the Tumblr origin of the slogan 'We are the 99%'; the hacker exploits of Wikileaks and Anonymous; the Facebook message from Ukrainian journalist Mustafa Nayyem – 'Come on, seriously. Tell me, who is ready to come out on Maidan before midnight?' – that sparked revolt in Kiev; the Turkish government's failed attempt to quell street protest by banning Twitter – all these became defining moments of a global ferment stirred with new means of communication.

A graphic instance of this journalistic depiction is provided by the cover of the 29 June 2013 issue of *The Economist*. Titled 'The March of Protest', it shows four revolutionary figures: a tricolor-brandishing woman, based on Delacroix's famous *The Spirit of Liberty*, labelled '1848 Europe'; a yippie, Molotov cocktail in one hand, flowers in another for '1968 America & Europe'; a Lech Walesa-type East European worker-intellectual, with a candle for vigils and a spanner, for '1989 Soviet Empire', and an ethnically indeterminate young woman, with a takeout coffee in her left hand and a cell phone in the right, the iconic Guy Fawkes mask of Anonymous at her feet, and behind her a police van water-cannoning crowds with signs reading 'Cairo', 'Istanbul', 'Rio'; her label is '2013 Everywhere'.

This theme is expanded in several longer accounts of the 2011 revolts. Paul Mason's (2012: 130) study of 'global revolution' (itself originally a blog post) suggests the protests reflect the emergence of forms of 'networked individualism'; Manuel Castells (2012) has tracked the 'networks of rage and hope'; and Paolo Gerbaudo (2012) argues that 'tweets in the streets' were critical for the organization of protests; several more regional studies, particularly on the Arab Spring, echo these themes (Faris 2013; Howard and Hussain 2013; Herrera 2014).

Others, however, are critical of this network-centric optic on the unrests. They claim it underestimates the importance of more traditional,

on-the-ground organizing methods (Aouragh and Alexander 2011; Therborn 2012); misses the continuing importance of older media forms (Kidd 2012a; Nunes 2008); and, most importantly, obscures the underlying grievances that drove people to streets and squares. Jodi Dean characterizes the 'Facebook revolution' trope as 'reactionary', a recuperation of radical politics by focusing on the high-tech gadgetry and networked chatter integral to 'communicative capitalism' (cited in Arria 2012). Philip Mirowski (2013) attributes the success of neoliberalism in withstanding dissent partly to the trivializing effect of journalists' focus on social media.

Arguments about the *tactical* role of digital platforms are important, especially for activists who want to learn from the 2011 revolts and also learn what their opponents are learning: we will return to them later. Behind the contending claims about social media empowerment and digital distraction there is, however, another issue – that of the *strategic* role of computers and networks in shaping the forces that clashed in squares and streets around the world. In North America, the slogan of Occupy – 'we are the 99%' – contrasted the fortunes of a 'one per cent' corporate elite controlling the most advanced digital systems on the planet with the fate of precarious workers and unemployed, for whom networked outsourcing and automation meant the loss of jobs and workplace bargaining power. Elsewhere around the world, movements challenging plutocratic elites combined, in varying mixes and alignments, the urban poor and homeless, waged industrial and service labour, students facing unemployment and anxious professionals – all groups whose conditions of work, or worklessness, had within a generation been drastically changed by the diffusion of computers and networks across a global capitalist economy. Within and beyond the 'Facebook revolution' controversy is, therefore, a wider question, that of the relation of cybernetics to class.

Vampires with Smartphones

Cybernetics and class are both old terms. 'Cybernetics' (Wiener 1948) was coined in the 1940s to describe issues of control and communication that lie at the root of early electronic computer development. Though the term dates from the days of giant mainframe computers, big as bungalows, it has given its name to all the cybernetic technologies – desktops, laptops, tablets, smartphones – that followed. Since then, however, there have also

been many other names to designate these technologies, and their social consequences and dimensions: 'post-industrialism', 'information society', 'knowledge society' (Bell 1973). And these include not just names given by the friends and apologists of capital, but also by critical theorists, speaking of 'information capitalism' (Mosco and Wasko 1988), 'digital capitalism' (Schiller 1999), 'cognitive capitalism' (Vercellone 2006), and other variants on the same theme.

So, again, why 'cybernetics'? In part *because* it is old; understanding processes involves seeing directions, vectors and lines of movement, and this requires glimpsing from whence ideas come, before they arrive crashing into one's cranium like a brick through a window or a military robot demolishing a door – and from that point of view an old word is good. Indeed, it is from accounts close to origins and points of conflict, not so obscured by the layers of mystification and self-congratulation built up by the victors of those battles, that some of the best accounts of the machinic processes we analyze here come. Specifically, it is the historical connotations of command, control and communication carried by the term 'cybernetics' – a name which originates in the Greek *kybernetes* for rulership – that recommends so pointedly the concept of 'cybernetic capitalism' (Robins and Webster 1988; Peters et al. 2009; Tiqqun 2001) for the study of computers and class.

Class is an even more ancient, blood-encrusted term. A Marxist concept of class designates the division of members of society according to their place in a system of production: today, as capitalists, various fluid intermediate strata or 'middle classes', and proletarians. But this is not a mere observation that societies are divided into economically in-equal strata, a bland sociological truism. The point is that a dominant stratum exploits all the others. Since the concept of class identifies a process of predation, it is unsurprising that no message is more frequently transmitted through the intellectual organs of society than that class does not exist. Or that it once existed, but has now passed away. Or that in so far as it exists, it is entirely innocuous. Thus it is suggested that the polarity between workers and owners has dissipated into infinite, negotiable gradations of income and status; that because working-class communities no longer have the close knit solidarity they did in the industrial city, class is no longer important; that ethnic and gender relations have replaced class in providing the coordinates of social life; that because living standards have risen, exploitation has been replaced by consumerism; and that, if class is to be mentioned at all, it should only be to affirm that we are all, every last

one of us, 'middle class'. To name class in an any more critical sense is to be condemned as, at best, reductionist, inhumanly insensitive to the rich textures of everyday life, committed to unearthly clinical abstraction, and, at worst, actively hostile towards social harmony, if not inciting civil war.

And it is indeed in such a spirit, let us confess, that we insist on class analysis, as that instrument required to recognize the inhuman, abstract and unearthly reductions forced onto people and planet by an economic system founded on a constitutive state of civil war, even if, today, this is a class war waged effectively only from above – by capital, for which the denial of class, the insistence that the world be understood only as a set of individual projects, is one of the most powerful and destructive weapons in that war. Yes, class does not today present itself in the same way as it did in Marx's era. But there is a difference, a world of difference, between saying that something has ceased to exist, and saying that it has mutated, become more complex, enlarged its scope on a worldwide basis. Today some computer scientists speculate that the entire universe is an artifact fabricated from the simple, binary on-off alternations of simple cellular automata (Wolfram 2002). We think much the same about the fabrication of society from the binary antagonisms of class. Class has become ontologically not less, but more real, more extended, entangled, ramified and differentiated – and yet without abolishing the opposition of exploiter and exploited on which it is posited, which is generative of countless intermediate forms, and yet preserves its simple, brutal algorithm. Who can doubt, seeing the difference in the condition of financier super-yacht owners and immigrant *sans papiers*, of the social media billionaire and the minimum-wage fast-food worker, that class exists?

Yet our ability to understand or even perceive class *has* been diminishing, and not only because of the restructuring of the global economy and its propagandist representation by free market ideologues, but also because of the numbing jargon of academic discussions, including discussion by Marxists. So, as inoculation, let us resurrect one of Marx's most vivid metaphors: he writes that capital, 'vampire-like, only lives by sucking living labour, and lives the more, the more labour it sucks' (1977: 342). Let's say straight out: class is a vampire relationship. It is a transfer of energy, time and consciousness – *aka* the extraction of surplus value – from one section of a species to another, in a process that makes the recipients increasingly alien to the coerced donors. In what follows, we will try to describe this process with a scholarly exactitude and terminological rigor that does not lose sight of its bloody, toxic nature. Nevertheless, if the

reader at any point feels her or his eyes glazing over, we recommend a thought experiment: for class read 'position in the vampire food chain'; for class struggle read 'the battle against vampires'; for class and cybernetics, 'vampires – but perhaps also vampire-slayers – with smartphones'.

Since the discovery of the microchip, promoters of the information revolution have argued that it dissolves class. Personal computers, laptops or smartphones place the 'means of production' in the hands of the working class, permitting the upward mobility of those who educate themselves sufficiently in new skills and literacies to leave the ranks of manual labour, transform into white-collar knowledge workers (Bell 1973) or digital artisans in electronic cottages (Toffler 1980), enter an ever-rising 'creative class' (Florida 2002), and become geek-inventors or, best of all, multi-billionaire digital entrepreneurs. After the collapse of the Soviet Union in 1989 – widely attributed to the West's ascendancy in information technologies – and the disappearance of any apparent alternative to worldwide market society, this techno-triumphalism rose to a crescendo. Digital technology promised a 'long boom' (Schwartz et al. 2000) of endless growth as antagonism to the existing order dissolved in a 'friction-free capitalism' (Gates 1995: 197). Communism's utopian aspirations could, it was claimed, be realized without conflict, within the boundaries of capitalism through social media self-organization (Shirky 2008) and online collectivism (Kelly 2009); cybernetics would abolish class.

There was always dissent from this happy diagnosis. Harry Braverman's (1974) account of the 'degradation of work' proposed that computers, far from being liberatory, extended the 'deskilling' of labour commenced in the factory assembly-line to the office-cubicle. Several similar studies argued that computerization intensified industrial capitalism's processes of rationalization, routinization and redundancy (Noble 1984; Shaiken 1984; Webster and Robins 1986). Socialist-feminist theory both deepened and complicated this analysis by addressing the interaction of class with gender in digitizing workplaces; computerization could undermine the patriarchal privileges of male skilled workers, yet also subject the female labour that might replace them to high levels of exploitation (Cockburn 1983 and 1985).

Amongst the fiercest critics of the new technologies were members of the 'workerist' or '*operaismo*' tendency, forerunner of what would later become known as 'autonomist Marxism'. Observing the assembly-line car factories of Northern Italy theorists of this school such as Raniero Panzieri

(1980) had in 1963 described how technological development became part of capitalist planning to disempower workers. In the same year, Romano Alquati analyzed how in the plants of Olivetti, a manufacturer of typewriters and calculators, computerized automation was beginning to be used to control a new generation of information workers; he concluded that 'the universal diffusion of capitalist despotism … realizes itself above all through its technology, its "science"', and suggested that 'Cybernetics recomposes globally and organically the functions of the general worker that are pulverised into individual micro-decisions: the Bit links up the atomised worker to the figures of the [economic] Plan' (Alquati 2013; Pasquinelli 2014a).

It was therefore a surprise when in 2000 one of the leading *operaismo* theorists, Antonio Negri, with co-author Michael Hardt, proposed a dramatic reinterpretation of social conflict in a digital era. Their *Empire* (2000) suggested that a fully global capital now confronted not so much a working class as a 'multitude' immersed in 'immaterial labour' involving the communicational and affective dimensions of networked production. Attuned to the excitement of the World Wide Web, open source software, and music piracy, and echoing the earlier work of Donna Haraway (1985), who had shaken feminist techno-pessimism by insisting on radical 'cyborg' potentials, Hardt and Negri, rather than emphasizing capital's cybernetic domination, declared the possibility of its digital subversion and supersession.

Their work appeared just as capital experienced its first major outburst of networked resistance. Youthful alter-globalist protestors were not only taking to tear-gas drenched streets from Seattle to Genoa, but also experimenting with indie-media centres; Zapatismo in cyberspace and electronic civil disobedience. In this context, Empire, and its two subsequent volumes, *Multitude* (2004) and *Commonwealth* (2009), struck a chord. Its ideas, further developed by authors such as Tiziana Terranova (2004), Maurizio Lazzarato (2004), Paolo Virno (2004), Andrea Fumagalli (2007) and Yves Moulier Boutang (2011), became the basis of a 'post-*operaismo*' analysis of 'cognitive capitalism' (Vercellone 2006) in which control of knowledge is understood as the main site for contesting capitalism and networks present an opportunity for multitude.

Hardt and Negri's work was an iconoclastic challenge to Marxism's attachment to the class configurations of an industrial era. It met with fierce scepticism (Dean and Passavant 2003; Balakrishnan 2003; Camfield 2007). Critics found 'multitude' frustratingly vague. 'Immaterial labour'