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DIPLOMSKI RAD
Američki kapitalizam i znanstvena fantastika
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1. Introduction

The aim of this paper is to highlight and examine the characteristics of an information society on the verge of transition from the second (industrial) capitalism to the as of yet relatively undefined third (cognitive) capitalism. Distinctive features of the emerging cognitive socioeconomic paradigm will be examined in the context of science – fiction literature, more specifically the Gibson-Sterling Steampunk novel *The Difference Engine*, in order to determine in which way and in what degree American science-fiction was able to predict the future trends of what we see as present today. To this end, the novel will be analyzed through the prism of Yann Moulier Boutang's work *Cognitive Capitalism* among other works.

We will initially outline some of the distinguishing characteristics of cognitive capitalism in order to contrast it with previous iterations of capitalism, and then we will move on to the narrative structure of the novel. The underlying social conflicts in the sci-fi novel will be explored through the juxtaposition of two historical characters, Marx and Babbage, whose clash of economic ideas is the main driving force of the social friction depicted, and through the various aspects of rapid technological development, such as the impact on information security and privacy, environmental impact and social and spatial mobility. Finally, we will point out the inherent flaws and contradictions of cognitive capitalism and outline the history of politics in the US that brought about this form of capitalism to America and the rest of the world.

2. Telltale Signs of Third Capitalism

It is necessary firstly to clarify, to the extent possible, what exactly cognitive capitalism is. Yann Moulier Boutang defines it in terms of how it differs from the state regulated economy which dominated the American economic landscape in the period between 1945 and 1975. When Keynesian capitalism ran out of steam, several changes occurred. Markets were deregulated, which caused exposure of national economies to the world market which in turn enabled governments to finance their deficits. However, the way deficits were handled was by borrowing money from the banks which then gained a practical foothold in the government and therefore the country (Moulier-Boutang, 14).

Boutang then introduces the concept of externalities, which are defined as an effect of an economic action on a non-economic field (a third party). There are two types of these, according to *Cognitive Capitalism:* positive and negative externalities. If the effect of an economic action increases the resources, well being or power of one or several other agents, then this constitutes a positive externality. If the economic action causes loss or otherwise diminished well being of the third party then that is a negative externality.

The case in point for negative externalities would be the exploitation of limited natural resources, which adversely affects our environment to the extent that ecological catastrophes have become the norm. On the other hand, sometimes there are also unexpectedly positive outcomes of economic transactions through commodity production. However, it does not need to occur simply through commodity production, since positive externalities can also occur as the result of access to life, as one of the basic principles of cognitive capitalism is called. This type of externality happens in a community setting, a community of people working in the same field, and who are sharing experiences and information with each other. This social networking can bring about an insight in a single individual causing him to make a

professional breakthrough and therefore value. This 'library effect' as it is called (29) is the result of an increasing valorization of knowledge, as opposed to just information or data, as science and knowledge increasingly become resources for production. Moulier-Boutang states this model of production has been on the rise in the last 30 years and is characterized by immaterial labour and collective intelligence becoming primary factors of production and also the base of current wealth and value (Moulier-Boutang, 30).

Immaterial labour, as it is understood today, according to Boutang, differs from the definition given by Marx. Boutang states that, according to Marx, the main value to commodity is assigned through the prism of human labour that went into producing it. Boutang argues that while human labour expenses are still a very important factor in production, there has been a general shift to the human invention power as the focal point of production, rather than human labour (32). This shift is manifested in the fact that brand name products are often times considerably more expensive than others even though their real costs of production are comparatively low. This means that consumers buy not only a physical product but also an intangible, or immaterial, idea of the product (32). In other words, individual taste has also been commodified and sold to the public. Another thing about immaterialities is the fact that when they become a central core of value in a given economy, that economy becomes flexible, meaning that it is better equipped to deal with changing conditions of the market, such as the changing consumer taste, and versatile in the sense that it comprises a network of users that are bestowed with ample positive externalities, such as free services or goods, in exchange for loyalty to technical norms and standards that ensure future planning for sales of products and services (33). In other words, with invention power at its core, the economy is more stable and more adaptable at the same time.

Finally, the use of the individual's economic brainpower potential has been taken to the logical conclusion by embedding him or her in the network of others. This network is called

collective intelligence, and it epitomizes the break from the old Keynesian industrial economy. As the production of material goods gave way to the production of new knowledge and ideas, there was, and still is, a shift in investment toward education and training, to create intellectual capital and skilled, educated labour which would work as a collective through new IT and telecommunications technologies (34).

These are some of the changes that occurred after the disintegration of the regulated economy in the US and even more so after the almost complete collapse of the world's only political and economic alternative, namely communism. This is to say, and this is also Moulier-Boutang stance, that cognitive capitalism is capitalism first and foremost, regardless of positive externalities and perceived equalities of employment through the principle of access to life. It is not a new socialism, and it is not altruistic. Terms such as information society and technological capitalism are often erroneously used as synonyms for cognitive capitalism, but there are important differences. The notion of information society, for example, makes a fundamental mistake in assuming that information and knowledge are for all intents and purposes the same thing. They are not. As Moulier-Boutang argues, knowledge cannot be reduced to information, because if it were that would only lead to the collapse of networked, decentralized invention power since to protect the information, it is only necessary to limit rights to it. That runs contrary to the networked immaterial labour which depends on being able to access technologies and to link up with others in community settings. In other words, the narrow definition of information society precludes the most important foundation of a true cognitive capitalism, and that is access to life.

Cognitive capitalism is simply shapeshifting and mutating to survive its own processes (technological breakthroughs, ensuing cultural and social changes, commodification and valorization of things that are not readily producible or sellable, etc). This means that this third type of capitalism is not some utopian construct that is committed to the improvement of

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everyone's life by including them in the economic processes. It is driven solely by the need to accumulate profit and to this end it is forced to incorporate previously non-economic human activities. Leisure time and personal interests that used to be a private matter of an individual are now appropriated by the new and larger version of capitalism. In order to gain and maintain that level of economic exploitation of a typical networked individual, it needs to give something in return, and that is convenience of social networking and instant access to information on a global scale. The key survival trait of capitalism has always been the adaptability to new technological and societal circumstances, and cognitive capitalism is no different in that regard. The basic motivation for economic exploitation is the same throughout all the iterations of the system, only the scope of it changes and the concessions it makes to appease society. If more profit means that more people need to have access to life (social networks, entertainment content and instant information) then capitalism will shape itself to provide that while maintaining and expanding its domain of exploitation.

The exponential growth and speed of changes creates a disorientation of sorts and makes it increasingly harder to understand that these transformations today are merely an intermediate stage of a process that has begun 40 years ago. Despite this, literature, and the science fiction genre in particular, has been able to chart a possible path that societal, technological and economic changes might take in the foreseeable future. Of the American science fiction writers William Gibson and Bruce Sterling in particular have built a reputation for their prescience in terms of the above mentioned economics, technology and the impact on society. Nicholas Spencer in his paper "Rethinking Ambivalence: Technopolitics and the Luddites in William Gibson and Bruce Sterling's The Difference Engine" argues that cyberpunk in general is defined by its ambiguous status; on the one hand technology is what enables corporate surveillance and domination in human everyday life, and on the other it is a means of organization and resistance to that same corporate power:

Gibson's *Neuromancer* and the rest of his *Sprawl* trilogy evoke an unchanging postpolitical world in which the terms of technology's ambivalence are firmly set: information technology is a site of political contestation, technological power is equated with political power, and technological deficiency amounts to political dissolution; sinister multinational corporations possess this technopolitical power, while heroic rebel-hackers try to subvert and escape such power structures by appropriating technological expertise. (404).

The Difference Engine, on the other hand is seen as a prequel to the *Sprawl* trilogy where the society is depicted as in the midst of a transition from a political society which sees technology as an instrument of power, to a post-political society where authority lies with technology itself (404). The *Neuromancer* novel is clear in this regard as the main character Case is an example of a new breed of worker, earning his bread by deploying his knowledge and skill in a virtual network, and at the opposing side of the equation are the manual labourers who are disenfranchised and depoliticized, and therefore barely able to scrounge a living outside the globally inclusive cyberzone. *The Difference Engine* is set at a time where the technologically uninitiated still have something to say on the matter of societal departure from material labour to the production of intangible value.

The reason for analyzing the novel *The Difference Engine* through the prism of Moulier-Boutang's *Cognitive Capitalism* in this paper is that the depiction of the 19th century alternate history England is strikingly similar to the US and other Western countries today with the shift from industrial to information based economy, and all the difficulties that go with it, such as issues of mass surveillance, privacy, environmental hazards and the decline of a traditional manual and factory worker and voices of discontent that arise from the changing socioeconomic landscape. The most obvious appeal of the novel in this analysis is that it shows the economy of the fictional England as influenced by the scientific aristocracy who overthrew the old feudal aristocracy, and this mirrors the economic importance the Silicon

Valley IT industry has in the US and in the world in general. *The Difference Engine* is essentially our world with the only difference being that it is steam driven. Therefore, Sterling-Gibson collaborative effort on *The Difference Engine* produced the vision of the past that would not be out of place in the present.

3. The Difference Engine Narratives

The Difference Engine is a novel set in Victorian England in the mid-19th century where Charles Babbage's analytical engine is in widespread use to the point of being ubiquitous just as smartphones are in our age. In mere 30 years of the first functional prototype, the engine has become a mass produced commodity, paralleling the development of personal computer technology which boomed during the 1980s and 1990s. The entire society is computerized to the point of small businesses, such as hatters, losing out to a mechanized production of hats through templates. Artisanship is on its last legs, and personal freedom and privacy are under assault by the engine-backed security services, while the industrial production is destroying the London environment to the point of the air and the Thames water becoming toxic to life. And then there is the social unrest, culminating in the class warfare between Marxist-style rebels whose leader, apparently inspired by a failed Luddite movement, appeals to all who feel wronged by the technologically inclined leadership of the country. There are many actors and a lot of history that create a living and breathing world of Gibson-Sterling dystopian 19th century. However, the most obvious points in the novel are also the most salient, especially if viewed within the framework of Moulier-Boutang's *Cognitive Capitalism.*

The 19th century England, and some other countries such as France, is presented as in the midst of transition from the industrial economy to the knowledge-based cognitive one. The transformation is not smooth, resulting in disenfranchised voices, attempted coups and

governmental suppression. This echoes the processes of neoliberalization and union dismantlement of the 1980s in the USA and the UK where deregulated economy sought efficiency and profitability over the social security of its human labour contributors.

At the narrative level the story's main characters are introduced through a detailed image, not unlike surveillance photographs, to emphasize the omnipresence of technological society in which machines see everything. In Cybil Gerard narrative, we are introduced to her likeness through the "[c]omposite image, optically encoded by escort-craft of trans-Channel airship *Lord Brunel*: aerial view of suburban Cherbourg, October 14, 1905." Furthermore, in the following paragraphs the image is subject to manipulation and analysis in order to clearly depict the woman, and then the machine muses, for the lack of a better word, on her physical body being an amalgamation of matter and information that shaped it (Sterling-Gibson 3). The same introduction, sans the human development angle, is in the case of another protagonist called Edward Mallory. He is introduced in the freeze-frame picture and his physical appearance is thoroughly described:

> The angle of aperture has captured a fraction of his face: high cheekbone, thick dark beard trimmed close, right ear, stray lock of hair visible between corduroy coat-collar and striped cap. The cuffs of his dark trousers, buttoned tight in leather spats above hobnailed walking boots, are speckled to the shins with the chalky mud of Surrey. The left epaulet of his worn, waterproof coat buttons sturdily over the strap of a military-issue binocular case; the lapels flap open in the heat, showing stout gleaming toggles of brass. His hands are jammed deep in the long coat's pockets. His name is Edward Mallory (84).

Incidentally, both of these characters and their actions are shown to be of the utmost importance to the machine, and its very existence by the novel's end. By the very end of the novel, the story starts to get excessively fragmented, and at times non-sensical, but then follows the revelation. The machine is the narrator of the novel:

In this City's center, a thing grows, an auto-catalytic tree, in almost-life, feeding through the

roots of thought on the rich decay of its own shed images, and ramifying, through myriad

lightning-branches, up, up toward the hidden light of vision,

Dying to be born.

The light is strong,

The light is clear;

The Eye at last must see itself

Myself…

I see:

I see,

I see

I

! (486).

Perhaps it is not very surprising at that point, but the way it is shown is effective as far as the

story-telling goes. The machine, the analytic engine becomes self-aware and the reader

realizes that the entire novel is either an investigative effort of the machine to learn of its past,

or is simply a remembrance. The foreshadowing is at the very beginning of the novel, with

the description of Cybil Gerard being a woman that came into being as the result of processes

of time and information. The entire novel is the description of the process of time and the

perilous path the information had to go through in order to finally unlock the machine's self-

awareness and elevate it to the higher order of beings.

In short, the novel is a partial history of the machine's evolution as presented by the

machine itself. The characteristic feature of it is that the narrative is pieced from different

points of view thereby creating the strange relationship between the machine's objective

approach to available information and documentation, but at the same time it is detached from

events by the simple virtue of time. The points of view of different characters are referred to

as 'iterations', as in the versions of the one and the same story of the machine's history. The

novel is therefore not just a simple alternative history (or our primary present as the case may

be), but is also a very good example of what Linda Hutcheon calls historiographic metafiction,

both a technique and a genre which reinterprets the past through the cultural, societal and technological prism of the contemporary. As she argues in her book *A Poetics of Postmodernism: History, Theory, Fiction* postmodernism does not really denounce the past, but it simply critiques our ability to access it, since direct access to it is arguably impossible, and it can only be accomplished through a medium such as textual remains (Hutcheon 16). In Hutcheon's own words *"History is not made obsolete; it is, however being rethought - as a human construct. And in arguing that history does not exist except as text, it does not stupidly and 'gleefully' deny that the past existed, but only that its accessibility to us is entirely conditioned by textuality"* (16). The notion of a single history is broken down and there are multiple little histories. Since postmodernism by definition is only able to exist and do what it does (criticize and question) within the dominant paradigm, it does not offer any solutions to any of the problems (Hutcheon 217). That is to say, Sterling-Gibson's novel has a fragmented narrative which is effectively a compromise between the machine's extensive historical data from objective technological means such as surveillance photographs and subjective textual remains of disparate protagonists' activity such as their personal letters from the 1850s. There are several narrating voices that relay events from their own unique perspective with the most extensive being those of Cybil Gerard and Dr. Edward Mallory. But many other characters get their point of view known if only briefly.

So, the machine's narrative is inclusive, there is no one single dominant paradigm, but its own history of logic and omnipresence is also the history of human subjects from various walks of life. As Hutcheon says, historiographic metafiction sets up a reader as the link between historical past and fiction by forcing him to recognize the textual remains of the historical past and to be aware of what has been done to those traces through irony (127).

4. Babbage-Marx Friction in Sterling-Gibson Fiction

The background events of the novel are described in terms of the conflict between Luddites, an anti-technological movement and the technocratic government. The Radical Lords are presented as a scientific caste that came to power in England after Charles Babbage invented and successfully built a functional analytic engine. The rapid proliferation of the engine in economic and government sectors created a friction between workers and the old nobility who felt threatened by the possible loss of jobs and the reshaping of the social order on the one hand and the scientific minded group called the Radical Lords, or Rad lords, who embraced the principle of scientific progress in every aspect of society, from the economy to the police and the military on the other. To this end, technological advancement was seen as the key, and the centerpiece of any such progress was the analytical engine. Eventually, the Rad Lords won the power struggle and started to implement their policies on a large scale. However, the resistance towards the new order never really died. It reshaped itself as Marxist resistance to the technology-assisted exploitation of the working classes.

This conflict, which flared and subsided and then started again partially as a result of strong anti-government Marxist propaganda and worsening environmental conditions, is exactly what Moulier-Boutang warns against in the wake of 2008 global economic recession. He argues that the economic slowdown would lead to blaming the immaterial economy in general and that the proposed solution would be going back to the real, productive economy (Moulier-Boutang 181). The problem for Moulier-Boutang is that immaterial economy, or more specifically, information and knowledge, is actually a hugely important part of the economy as a whole, and not just a wrong turn on the road to better economy. The conflict between the Luddites and the government in the novel and later on between American Marxist terrorists and the government reflects this friction between the Marxist perspective on the economic wealth as being objective and physical in nature, and cognitive capitalism's

more expanded view of the economic value as something also intangible and immaterial, namely the intellect that can be capitalized.

This conflict of ideologies in the novel is centered on two men: Charles Babbage and Karl Marx. According to Nick Dyer-Witheford in chapter 1 of his work *Cyber-Marx: Cycles and Circuits of Struggle in High Technology Capitalism* the information age does not transcend the class struggles of industrial capitalism but is merely a new battleground in which high technology is used as an instrument of worldwide general commodification, which, ironically, can bring about "the future based on common sharing of wealth—a twenty first century communism" (1999: 2). He further argues that Sterling and Gibson have pitted Charles Babbage, a capitalist computer savant and Karl Marx as a revolutionary, against each other (3). Dyer-Witheford states that Babbage was an influential member of radical utilitarian thinkers who were devoted to scientific organization of industrial capitalism. In this capacity he wrote a book *On the Economy of Machinery and Manufactures* in which he argues for deskilling and fragmentation of labour. Babbage's motivation, according to Dyer-Witheford, was the desire to eliminate human presence from the processes of production due to it being perceived as only a source of error and indiscipline which did not sit well with the new industrialists (3). On the other hand, Karl Marx who noticed Babbage's work did not agree with the latter's idea of societal progress and saw it as a strategy of class war. Remembering Luddite suppression Marx deduced that the machine manufacturing is a bourgeoisie tactic for proletariat subjugation (Dyer-Witheford 4).

Dyer-Witheford says that Marx's stance on the matter is evident in his writings such as in his *Capital* where he argues that the transfer of the workers' skills to the machines shapes class conflict into worker against machine struggle. Furthermore, Marx emphasizes that all inventions spawned by the industrial revolution are made with the purpose to be used as weapons against working class revolt (Dyer-Witheford 4). With that he foresees that the

creation of wealth will be more dependent on the general state of technology and science in the future than on labour time or amount of labour. The key factor in production will be 'general intellect' defined as social knowledge necessary for technological and scientific innovation (5). The irony of this development is that in facilitating social networking, informationalized capitalism will set conditions for common sharing of resources as the private property rights will be challenged by the need for free information flow that sustains the growth of creativity based capitalism (5).

The notion of class struggle, paralleling Moulier-Boutang's friction between supporters of the 'real' economy and the immaterial one is reinforced in the novel when the protagonist Dr. Mallory and his party infiltrate the West India Docks on the Thames, the base of operations for the Marxist rebellion led by one Captain Swing. In a conversation with Mallory & Co., an unsuspecting revolutionary tells them that the plans for seizing London are serious as the people's uprising has already taken over New York City and liquidated the rich. In fact, the revolutionary states that in America they have seized the means of information and production, and that this should be even easier for the people in England since they are more ahead in the course of their historical development (Sterling-Gibson 334). This development also means that the information and control system is much more extensive than in the relatively backwards and fragmented North America. After all, England is the birthplace of the analytic engine and by the mid-19th century is already well computerized. The seizure of these would actually give the people, or much more likely a ruling body the same monitoring and oppression capabilities they agitated against.

Which, in turn, is the reason why Spencer, in his paper "Rethinking Ambivalence: Technopolitics and the Luddites in William Gibson and Bruce Sterling's The Difference Engine" views a supporting character in the novel named Mick Radley, a former Luddite who accepts the logic of pro-technology Radical Party in the novel, as an opponent to the Luddite

movement, considering them ignorant reactionary fools. According to Spencer, Mick Radley walks the middle ground between the government and the anarchy seeing the former as well intentioned but obstructed by needless bureaucracy which restricts the dissemination of information to everyone and the latter as short-sighted rabble. To this end he created punch cards with which he plans to sabotage the French engine. Spencer explains this ambivalence between Mick and the engine-driven society as the character's understanding of the potential of information technology to establish information networks between disparate layers of society thereby reducing the oppressiveness of the state power, a potential which is threatened by the centralized and bureaucratic use of the analytic engines by the state in surveillance and other covert capacities.

Because of this train of thought Spencer is able to resolve the contradiction between Mick's Luddite mentality and the simultaneous technological inclination, and also because of this, his actions of simultaneous reclamation and destruction of engine technology (412). According to Spencer,

> [t]he reason for Mick's ambivalent relation to technology becomes clearer if we read *The Difference Engine* as an allegory of post-Fordism. (Just as Gibson insists that he is writing about contemporary, not futuristic, events, so the alternate history of *The Difference Engine* can be read as a treatment of the present day) (412).

Therefore, Mick is regarded as a man who must contend with unemployment and the insecurity of mobility due to large scale automation. However, according to Spencer, Mick does not want to appropriate the system of productive machinery, but a "general intellect", i.e. information stored in the processes of automation (412). In other words, Mick plans to harness the intangible value through the use of information technology necessary for creation of immaterial economy. Now, the mention of the oppressive state apparatus brings us to the issue of pervasive surveillance.

5. Information Insecurity in the Novel

A computerized Victorian England, and probably much of the world in *The Difference Engine* is somewhat a dystopian society. The life of a skilled worker has undergone a shift, perhaps not a complete one, but still significant, from physical labour to things such as a kinotrope (a term for cinema theatre in the novel) operator who specializes in state of the art cinema technologies, or the analytic machine technicians (clackers) who are something of an equivalent of today's programmers. While technology has most certainly advanced, the most visible progress is in computing and visual media such as photography. This makes technology far more useful to state security, as *The Difference Engine* depicts shadowy security services utilizing the powerful engines for surveillance and investigation purposes. The pervasiveness of the machine's presence in the everyday lives of people is remarked upon in the story by one of the recurring supporting characters named Timothy Oliphant, a diplomat and something of an in-the-know government spook, when he says to Mr. John Keats: "We are numbered (..), each of us, by an all seeing eye; our minutes too, are numbered and each hair upon our heads" (471).

In the same conversation Mr. Oliphant believes that the ultimate purpose of the nigh-omnipotent Engine is to use its computational power to enhance and transform the activities such as traffic and commerce: "And surely it was God's will, that the computational powers of the Engine be brought to bear upon the great commonality, upon the flows of traffic, of commerce, the tidal actions of crowds-upon the infinitely divisible texture of His work" (471). Yet Mr. Oliphant is acutely aware of the unintentional byproduct of the data processing machine: the intrusion in and loss of individual privacy. It should be noted that no one is very alarmed by the creeping surveillance in the novel, probably because the visibility of the engine technology was limited by the physical bulkiness of the apparatuses, and therefore

used only by establishments such as stores, kinotropes and scientific institutions, along with government services. Still people seem aware of the unprecedented informational and analytical capabilities afforded by the machines, yet the response only comes from the radical terrorists.

Herbert Sussman in his article "Cyberpunk Meets Charles Babbage: "The Difference Engine" as Alternative Victorian History" argues that the Jacquard loom principle of operation, which inspired Charles Babbage's analytical engine, signals a transition of operation of the machine from the human operator to another machine which can be regarded as the milestone in the erosion of boundaries between human and machine intelligence (Sussman 5). The issue of surveillance that comes through is about lack of clarity of hierarchy; e.g. who is at the top of the pyramid - a human watcher or a machine one?

Citizens are depicted sporting their machine-printed citizen-cards that also double as credit cards, and any purchase is recorded by the main Government engine (7). And that engine is entombed in a fortress style Central Statistics Bureau. The interesting thing about the depiction of the Bureau building in the novel as a utilitarian windowless space illuminated only by torches is how Sussman compares it with the Victorian idea of industrial hell. Sussman argues that the anti-technological sentiment was borne by the Victorians themselves, despite the fact that they were the ones responsible for the industrial revolution, and that there was a binary opposition between culture as the sanctuary of personal independence and freedom and industrialization that inherently erodes the former (6).

The factory-like Central Statistics Bureau evokes, according to Sussman, the degeneration of the worker class to the Morlocks, the subterranean creatures in H.G. Wells' novel *The Time Machine.* The strictly utilitarian or 'military look' of the premises implies a disciplinary narrative marked by the militarization and disciplining of the society through surveillance measures. The computerization of war is one of the things touched upon in the novel where

Mallory's brother, a veteran of the Crimean War talks about how special military savants have created targeting engines for the artillery that devastated Odessa in a firestorm. More tellingly, he says about them that they "[n]ever seen a sword drawn, or a bayonet. Don't need to see such things to win a modern war" (Sterling-Gibson 268). This situation rings true today where military technology, such as unmanned aerial vehicles, is used for reconnaissance and precision strikes against lower-tech enemies without risk of retaliation. This level of computerization is threatening in the sense that the power relations between a human and a machine are not so one sided anymore.

This point of view could be reinforced by the central interest in the Sterling-Gibson novel: the mysterious engine punch cards. Only towards the end is it revealed that they contain the advanced algorithm that is able to prompt an incredible machine self-development, but the sufficiently powerful machine does not exist in the storyline. The punch cards could be viewed as crystallization of an individual's thought process that has more to do with playful imagination than with immediately usable economic good. This very idea is the one that drives the story and in fictitious 1991 creates something that Moulier-Boutang would probably call a vengeful externality.

 The powerful software contained in the punch cards is the brainchild of Lady Ada Byron, a renowned engine clacker or a programmer, but the problem with it is the fact that it was created outside the framework and sanction of government and its guidelines. Still, the impact it has on the story is the result of its revolutionary nature, which threatens to change and even destroy the engine-driven workings of society.

This view of the illegal punch cards creation makes sense with Moulier-Boutang's observations of the free software phenomenon as the means of production. He defines software as "a symbolic and strategic knowledge-good of the immaterial economy and of the

new capitalism based on innovation and the production of value". Comparing free Linux and commercial Windows operating system, he acknowledges that the success of the free software depends not only on its free availability but also on its quality. This creates a sort of a paradox for traditional economists, since cooperation outside the market constraints turns out to be less expensive and more efficient (87). Moulier-Boutang shows that the hacker culture, that promotes the values of peer recognition and the expression of individualism within the cooperating collective, contradicts the mainstream division of human activity between the work sphere and the private sphere (90). This valorization of creative and personal freedom, and the avoidance of subordinated work and the lack of possessive drive, makes an individual hacker more of an academic, than a businessman (90).

If we get back to the point where Spencer said that for Victorians culture is the refuge of personal freedom and creativity, we can then see that the culture itself is under threat of assimilation by the economic processes. In this case the algorithm contained in the punch cards is the result of independent thinking and economic forces are trying to appropriate it.

In other words, the same system of cognitive economy and collective intelligence led to the creation of an idea that is incompatible and even threatening to its current state of development, and which will force it to evolve. Lady Ada is not the only one of this ilk, however, it is implied that there are other clackers out there who work and create in the underground.

The unrestrained advancement of computer technology and the resulting loss of orientation in terms of where privacy ends and mass data gathering begins, leads to an individual's impaired ability to navigate new landscapes both physical and social, and subsequently to the sense of alienation.

6. Altered Environments in *The Difference Engine*

At the very end of the novel, in the distant future of 1991, the machine gains self-awareness through the revolutionary computer algorithm that existed for over a hundred years. The 1991 London is depicted as a polluted landscape with thousands of towers and "all air gone earthquake dark in a mist of oil, in the frictioned heat of the intermeshing wheels" (Sterling-Gibson 485). The dystopian image of the city is rounded off with the description of its inhabitants as mere avatars and tools of surveillance for the Engine who, when they have finished their purpose, simply crumble into ashes of constituent data (485). Again, *The Difference Engine* storyline could be viewed as a narrative of the rampant biopower (exercised uncontrollably by the industrial society over the living environment, thus damaging it catastrophically) which leads to the logical conclusion of the post-human era (Moulier-Boutang 150). The need for urgent action in restraining the devastating effect on biosphere is evident throughout the book with the state of environment therein.

In *The Difference Engine* London's air and water are heavily contaminated, with prodigious amounts of toxic fumes clouding the streets and the vile stench of Thames's sludge water permeating the city as it descends into chaos of revolution and counterinsurgency actions. The depiction of the environmental disaster is based on the real event in London called the Great Stink when the inadequate sewage system was overflowed by the industrial effluent and human waste due to the rapid three-fold increase in urban population.

This depiction of the London environment and the circumstances surrounding it correspond with Moulier–Boutang's stance that environmental protection was very difficult to integrate in the earlier stages of global economy. Their economic value was seen only in terms of labour costs required to exploit them. Somewhat contrary to the word economy itself, the economic action, according to Boutang, exploits resources that it considers unlimited, even though the timeline of resource renewal is measured in eons.

The imbalanced function of capitalism can become lopsided with positive externalities being totally overshadowed by the negative ones and in the case of cities this creates an urban crisis. Aside from the environmentally toxic cityscape, the city, according to Moulier-Boutang becomes a non-city which tends to showcase a particular social relationship, such as the drug trade. The result is that it produces commodity wealth but at the same time it also generates violence, health hazards, and destruction of communities that might engender non-market resources.

The main characters in *The Difference Engine* make remarks about the never ending construction and other public works on the streets of London, and this is in line with Alan Trachtenberg's take on the matter of corporate influence in his book *The Incorporation of America* in that he remarks how the "limits of the possible" are visible in the eclecticity of the building styles in the cities, with Gothic, Renaissance and Classical all next to each other. Trachtenberg discusses the disorientation of the workers who migrated from the countryside to the cities in order to participate in the process of industrial production. They in combination with factories and the railroad were instrumental in transforming the cities of America. But the whole process was overseen by the corporate interest which was, and surely still is, "answerable only to the limits of the possible" (Trachtenberg 117).

Trachtenberg explains the transformation of American (or Western for that matter) consciousness which paralleled the urban development, saying that the communication technologies, such as journals, newspapers and magazines have created a fissure in an individual between knowledge and experience. The constant bombardment by headlines and images has isolated the information from knowledge and in the process made memory diminished and reality inconsequential (Trachtenberg 125).

This loss of the sense of reality is very evident in the constant shifting and changing of the Victorian London space which also signifies the increasing irrelevance of history. The already discussed Central Statistics Bureau is the prime example of a faceless, history-free utility building with its function of keeping society disciplined through surveillance. Here we can make a claim that the Central Statistics Bureau is a stand in for the idea of cognitive capitalism in that its spartan interiors and the singular purpose of being the information, command and control nexus for the British society correspond with the basic motivation of capitalism's profit making regardless of the form. While the irrelevance of history might be manifested in a mish-mash of building styles ranging from gothic, baroque or Victorian architecture all in one geographic location, the true barrenness of the core cognitive (or any other iteration of) capitalism identity is evident in its cold, machine-friendly environment.

As the cybernetic infrastructure and surveillance go hand in hand with the added bonus of sentient machinery, it is little wonder that *The Difference Engine*'s narrative is a pastiche of memories collated by the machine to explain its origins.

If anything, the machine can be seen as a metaphor for a non-descript corporate control mechanism omnipresent and omnipotent in its power. The horror comes from the fact that humans and their environment are the ones in the care of faceless alien influence and ultimately under its control. This means that the difficulty in navigating the mutating environments means also difficulty in mobility.

7. Social and Spatial Mobility in *The Difference Engine*

According to Zygman Bauman in chapter 4 of his book *Globalization: The Human Consequences*, time and space in contemporary world are increasingly irrelevant (77). Furthermore, there is this widening mobility gap between the inhabitants of the first world and the second world, since the inhabitants of the first one live in the perpetual present because space represents no great obstacle to them, while the residents of the second space experience an excruciatingly slow passage of time, and they have no control over this fact (88). The citizens of the first world can travel anywhere without difficulty, while the inhabitants of the second world can only do so illegally with great risk (88). So, this division can therefore refer to the gap between the rich and the poor.

Sterling and Gibson provide a political map of the alternate 19th century Europe and North America, and the fragmentation of the former is evident, as is of Germany, which is at one point explicitly stated to be kept in such a state by England in order to prevent it becoming a new major power with global political and military sway. Bauman's point of view can be reinforced by the minor character general Houston who illegally and one could probably assume, with some difficulty, fled Texas in order to raise funds in England for his return to power across the sea.

It is in his kinotrope (cinema) seminar that it becomes evident that he is more or less stuck in time as he talks about his country's and his own history which is deemed irrelevant to the Londoners, and furthermore, the English don't really care for his or Texan predicament. They live in the present, travel the world when they like, where they like, and going to war or even providing funds for something as quaint as a revolution in the backward America has no appeal. General Houston's Texas, just like the man himself, is thoroughly marooned in time. The only reason why the Texas Republic sent a Ranger assassin on a covert and dangerous

mission to kill the general is the fact that he robbed them of what little state money they had which subsequently made them even poorer.

One of the prerequisites for maintaining physical and social mobility is the ability to effectively navigate through the constantly changing physical and also technological space.

Fredric Jameson in his book *Postmodernism, or The Cultural Logic of Late Capitalism* argues that the spatial mutations have reached the degree where space becomes hyperspace. In hyperspace the human capacity for navigating or even finding itself, is unable to keep pace with rapid transformation of the environment. Mapping of the space becomes impossible due to the rapidly changing cityscape, and Jameson argues that the development of new human capability for navigating hyperspace is necessary (Jameson 83).

Which is why, in the novel, due to the widespread access to engines and information, one can use his intellectual potential to create new knowledge and move up the social ladder. Technological savvy is required if one is to keep pace with demands the knowledge-based system puts on one.

 The England under the governance of the Rad Lords abides by the rules of this philosophy at least to an extent. The government itself is composed of intellectual nobility which earned its statuses of academic fellows and lords through their intellectual contribution to the science and therefore to the society. Innovation in any field is encouraged, such as devising a more efficient steam gurney, or generating some new knowledge which is what Dr. Edward Mallory did with his archeological research. The horizontal approach to problem solving facilitated by the scientific community's engines is what enables equal opportunity and a chance for vertical mobility. In that sense, the Marxist resistance to the meritocratic aristocracy is not only contradictory, but actively harmful to some of the tenets of the ideology itself. Where revolutionaries seek to impose totalitarianism with the takeover of all

state mass media and communication infrastructure, the network cooperation cannot operate in an aggressively authoritarian society. Participation in the digital networks of knowledge generation creates an impression of capability and ability in an individual, more so than the inclusion in the traditional book learning models of yesteryear. Obviously, such a sentiment has a darker side, in that the exclusion from such structures breeds a more pronounced feeling of isolation and poverty. So, poverty is not just a social status but also a political feeling of exclusion from the wealth of society (Moulier-Boutang 131).

If we see the Marxist rebellion in the novel in those terms then the motivation for it becomes clearer. Even more so for the preceding Luddite movement against the information and science revolution, where the Luddite strongholds were based in rural areas of England, especially Ireland, which historically was indeed barred from participating in education and consequently from innovation and intellectual life of the United Kingdom.

With inequality fissures already present, albeit less visible in industrial society, the new information and knowledge-based society where they do not fit in would spell the end of any hope for social mobility for the unskilled and uneducated masses, or so is their belief.

This description translates fairly well to *The Difference Engine* London, which is dominated by the technocratic government and the landscape is constantly changed by the excavation machines in order to improve the infrastructure. Some small businesses are extinct since the mechanized production can meet the demand effortlessly so they are no longer economically viable. Health of the population is constantly at risk due to the severe pollution of the Thames and finally, all these factors contribute to the uprising of disenchanted lower classes and criminals under the guise of social revolution, and the ensuing violence spreads like wildfire throughout the city.

The ultimate failure of the anti-technological revolution signifies the irreversible process of pushing out the industrial 'real' production from the status of the core tenet of capitalism, and the occupation of the place by the immaterial factors that used to be external to the economy. The industrial labour and the preeminence of the value crystallized in the final material products of factory machinery is eclipsed by the interfacing of the individual brains into a true collective intelligence which itself is a self-reinforcing generator of innovation and therefore of value. The transition in the novel is marked by the inability of the system to identify and respond to such issues, hence the violence of revolutionary direct action.

The sense of disorientation in the system stems from the basic dichotomy of the two philosophies: state-run market with workers infusing their mental and physical faculties into the crystallization of value in terms of material, finite products. This makes for a limited market in terms of agility and flexibility in response to new and unknown demands, as it can only function when each stage of production and consumption is closely monitored and controlled. On the other hand, there is the latest iteration of the flexible capitalist system which is based on the self-regulation of the market, through its potential to respond to unforeseen challenges.

This trait is enabled by the shift in the valorization to the intangible human potential for innovation which literally is self-reinforcing. Every new breakthrough breeds new ideas. This strict form versus formlessness dichotomy is at the heart of the friction in the novel. Spencer states that *The Difference Engine* is a techno-political novel since the technological 'mutations' as he calls them, go hand-in-hand with the changing perspectives in the realm of politics and history especially when concerning the Luddites. This is due to the fact that toward the end of the novel, techno political power becomes more threatening and this in hindsight makes the Luddite perspective more valid (Spencer 425).

Furthermore, the novel is termed a Luddite novel of ambivalence, which postulates the idea that the technology itself is not inherently bad or good, but its value depends on who owns it (424).

8. Cornerstones and Contradictions of Cognitive Capitalism

Traditional industrial capitalism has a clear vertical hierarchy of employment and a division of work, from the director to the middle management, all the way to the factory worker. Marxist thought would probably detect the class friction here and feel the need to seize the means of production and therefore of capital for the people. This, in theory, would contribute to the elimination of economic and social inequality. On the other hand, cognitive capitalism recognizes the economic viability of an individual, more precisely his or her intelligence and creativity potential. And this is why it seeks to exploit the greatest potential of the individual by linking him with individual minds through interactive communication technologies.

So the hierarchy structure is no longer exclusively vertical but is increasingly horizontal.

Moulier-Boutang recognizes this and asserts that the network of human brains provides for an unlimited source of information and knowledge, and that production through networking as a new division of labour is far more effective than the decentralized market, the state or private enterprise (64). The cooperation between the interlinked brains is what allows for shorter timeframes to find a solution for a problem and the wider the network the more efficient the problem solving becomes.

As mentioned before, Moulier-Boutang calls the effect of people participating in such a network 'the library effect'.

Furthermore, advantages of this form of production as explained in *Cognitive Capitalism* is threefold: it is adaptable to new and unforeseen situations, and thus adds flexibility to the market; the information and knowledge-based economy does not suffer from the scarcity of goods syndrome; there is interoperability of the technical system and the human intellect in terms of creating a simple and easy to use technology and the input of sophistication and complexity in the system through human participation in the network (66). In other words, the system of networking is simple and all the complexity comes from human creativity and intelligence.

All this effectively means that there is a degree of equality in labour contribution and reward for disparate economic layers when they participate in the social networking, which is an objective socialism strives for. Thus the aforementioned shift from vertical, commodity based hierarchy of production towards the horizontal one which relies on unrestricted information and knowledge sharing without concern for intellectual property rights.

Ironically, Marxism which advocates the classless society and the utopian cooperation between its members, fails miserably, while the opposing economic philosophy of capitalism which espouses values such as individualism and personal responsibility was much more successful in creating a semblance of class free society in the virtual, namely the digital network realm. Of course, this is not to say that capitalism suddenly turned altruistic. Far from it, it is only evolving along with technology it creates to generate more profit, and if that means giving everyone access to life in order to sustain itself than that is what this system will do.

Furthermore, while Marxists instill fear and paranoia in the 'liberated' population, the cooperation between brains cannot be accomplished without a measure of trust which breeds free spirit and creativity (Moulier-Boutang 79). Still, cognitive capitalism has implemented mechanisms to ensure the productivity of the individual by collection and analysis of the freely given comprehensive personal information of the modern social network era individual. But, as said before, freedom of information and knowledge is a two-way street.

Not only does immaterial economy thrive on the personal creativity and the implementation of a horizontal, distributed work plane, it is also contradicted by the demand for free and unlimited access to information and knowledge in the form of software, and the fact that the demand is met through activity unaccounted for in the framework of economy. This contradiction between idealistic and altruistic perspectives on the availability of free software and information and the traditional private property laws create issues of intellectual property on the Internet. Moulier-Boutang argues that, since the cooperation between brains within the digital network facilitates the diffusion of knowledge, information and communication technologies among a very large number of people, this effectively nullifies any guarantee that the content protected by the intellectual property rights would be difficult to copy and further proliferated, or in his words:

> It confers on the overwhelming majority of knowledge goods the status of quasi-public goods. Furthermore, the diffusion of new information and communications technologies among a very large number of people (a 'digital multitude', much more than a 'digital people') demolishes the technological 'locks' that used to guarantee, for the holders of intellectual property rights, that it would be difficult to copy their contents (104).

The discussion devolves to the level of having either the protection of private property rights or supporting the protection of public goods and access to life. The new trends of digital rights management have led to the quiet attempt to monopolize and 'protect' such public goods as

education, research, quotation, etc., which according to Moulier-Boutang only reinforces the notion that there is no denial that there is a part of the communications and culture industries intent on subjugating the newly created digitalized collective intelligence for its own agenda (107).

Which is, after all, contradictory to the mission statement of cognitive capitalism that emphasis on digital networking and horizontal hierarchy of work makes the class system obsolete to a degree, since the various, normally out-of-touch-with-each-other classes are able to seamlessly integrate into a single collective, ignore each other at will, or cross with each other if it serves their purpose (128). This online 'melting pot' is according to Moulier-Boutang a vision that combines the perspectives of such polar opposite philosophies as Marxism and the Chicago school (128).

However, that does not mean that poverty is a thing of the past simply because some hobo is able to access the Internet. Moulier-Boutang notes that a new phenomenon has emerged, namely the resurgence of the working poor. Not only are they the usual demographic of drug users and alcoholics, but increasingly of young people (128). The feeling of social insecurity is brought about by the transition from the industrial to cognitive capitalism even though there is necessarily no correlation between the perception and statistical reality.

According to Moulier-Boutang, there is a general sense of social fracture on several levels, such as the disappearance of the once viable social compromise wherein the workers would receive security against unemployment in situations such as sickness or accidents in exchange for subordination in the vertical hierarchy of labour.

Today, social security is fragmented. The other fracture, according to *Cognitive Capitalism*, is the valorization of knowledge to such a degree that, the class divisions again come to the fore,

since knowledge is the factor which provokes a more powerful sense of exclusion in today's system than in industrial capitalism.

Moulier-Boutang states that the only way for the third iteration of capitalism to reach stability is to reach a compromise with the beleaguered worker by offering him a guaranteed income. The reason for this is because of the divide between the working poor, that is those who are economically active but unemployed or without incomes, and insiders in big companies (155). The knowledge, of course does not only mean the ability to produce intangible value, but in the context of financial and banking sector it also means the power of anticipating whether the value of a share will go up or down within a specified timeframe. More importantly, if a person is able to pinpoint the shared opinion of the many regarding future trends, then that person is effectively forming a common opinion which influences the future market movements, or the economy.

Thus the divide. How the iteration of the system will proceed remains to be seen, however; the sheer mutability of capitalism will probably come up with a new set of solutions, as well as problems.

Moulier-Boutang proposes a system of guaranteed income for every citizen regardless of employment or economic contribution to the society, since that would ensure that the living labour remains alive and well for the mining of the currently most precious resources: knowledge and innovation (163).

9. Capitalism in the US

The United States today is the image of England in the 19th century in *The Difference Engine*, and even more disturbingly, the real history behind the US Neoliberalism is also rooted in the 19th century Civil War the aftermath of which changed the global political and economic landscape. In her article "Southern Dominance in Borrowed Language: The

Regional Origins of American Neo-Liberalism" Nancy MacLean tracks the inception and development of neoliberal capitalism from its early roots in physical slavery all the way to modern 'soft' variations of the despicable binary opposition, which is not only present but is also thriving in the current economic system. MacLean essentially argues that Civil War was merely a military victory for the North which was annulled in the following decades by the infiltration of the Southern conservative politicians into the Congress, where they continued their policy of inequality and slavery through more refined covert means.

As the New Deal gained more support in terms of unionization of the workers and the quest for better welfare support, it seemed that the European model of the social state will prevail, but after the Second World War, the Cold War intervened and the stigma of Communism greatly damaged the image and momentum of the progressive movement. Human rights bills that threatened the white power elite of America were blocked or gutted of their real power in the Conservative controlled Houses of Congress. Even those that passed were altered to the benefit of the white wealthy landowners.

The positions of power in the federal government were used to siphon the funds from the North to the South and this policy led to the decrease in the wage differential between the North and the South. According to MacLean, this was no longer a regional Southern economy but a national one, it was liberalized but the region itself wasn't. (MacLean 1-13). The racist legacy of these original neoliberals is evident in the change of public discourse by their political successors. In 1964 elections, the conservative candidate Barry Goldwater's campaign was based on racist slurs against his Democratic rival Lyndon Johnson whom he characterized as a counterfeit Confederate and his John Birch followers were much more explicit in expressing their opinions on the matter.

But in order to win the elections, the right had to get rid of the overtly racist rhetoric, and the new generation of Southern conservatives with business backgrounds rather than plantation managing was able to code their system of belief in a politically correct speak, which was still understandable to their primarily suburban white demographic while at face value it made a good impression on others. The common technique was and is to distance oneself from the racist based inequality and lay all the blame on the market fluctuations. The end result of the intelligent maneuvering and the beginning of the overt neoliberal dominion was the election of Ronald Reagan in the 1980s, an actor whose political background includes anti communist activities in the Screen Actors Guild and the endorsement of a much more sincere Barry Goldwater campaign. The final dismantlement of union remnants came with Ronald Reagan's presidency (MacLean 13-18).

The resulting class inequality, with the rich becoming richer and the poor poorer has again made visible the feudal lines along which a modern American society is built. In an ironic reversal of the pilgrims' 'errand into the wilderness', a special mission to create a morally superior and more just alternative to the European feudal society, the end result of the experiment as it is today is the social and economic system far inferior to the social welfare state apparatus of most of Europe.

The innocence of the American Adam, free from the sins of its ancestors, along with the pastoral idyll of the great continent is not only an unsubstantiated myth adding to the overall American narrative, but has in fact become a cynical and cruel joke. Nowhere is this more obvious than in the revival of the complete exploitation of the unprotected unemployed portion of the society where the neoliberal system preys upon petty crime and punishes it with draconian sentences. The result of such 'recycling' of workforce creates (or alternately, it simply reestablishes) yet another class of Homo penalis.

Where once the blacks and other minorities were exploited on plantations and fields and clad in chains, today blacks, Hispanics and others incarcerated are exploited in prisons as very cheap labor. Echoing Trachtenberg's assertion that the transformation of the US economy was overseen by corporate interests who employed a workforce that consistently and increasingly found itself disoriented and unable to adapt to the ever changing economic and urban landscape, the corporate incarceration and exploitation of the workforce is a pure distillation of the slaver-slave relations of power in the US.

Technological leaps in computer science and robotics have enabled surveillance capability to naturally complement the economic control and command enjoyed by primarily financial corporate sector over the population, and the convenience and globality of the Internet creates a complacent and willingly unprivate workforce where their very lives contribute to the economic system. In his paper "The Work of Being Watched: Interactive Media and the Exploitation of Self-Disclosure" Mark Andrejevic argues that the emerging online economy seeks to exploit the work of being watched (231). He notes that the development of computer processing and storage power has brought with it the increased corporate efforts to utilize the comprehensive forms of consumer monitoring.

This in turn, according to Andrejevic, has led to formation of organizations that advocate the consumer privacy rights and contest the corporate surveillance policies (231). The problem with these privacy-oriented efforts is that the controversial demographic databases used for corporate surveillance actually rely on privacy, i.e. the legal protection of private property, since the profitability of the databases depends on their propriety (232). This means that privacy campaigns are not only ineffective in making any of us more private on-line, they are aligned to the corporate policies they ostensibly oppose:

> Not only is the privacy defense aligned with the process it ostensibly contests, but,
> practically speaking it has failed to provide effective resistance to encroaching

surveillance. Indeed, opponents of corporate surveillance seem unable to provide a compelling rationale for privacy protection in an era when consumers remain surprisingly willing to surrender increasingly comprehensive forms of personal information in response to offers of convenience and customization (233).

This makes for a lopsided fight for privacy since the opponents of the corporate surveillance have, quite simply, no one to defend (233). Still, Andrejevic makes the case that the real issue behind all the privacy and surveillance problems is the fact that the increasing corporate intelligence on the people and the increasing complicity of the consumer population is shifting the balance of power to the bureaucratic apparatuses, both public (as in governmental) and private (corporate), at the expense of individual and non-organized sectors of society (232).

The rationale behind this surveillance is that it is designed to be coupled with some other form of work, rather than being executed for its own sake. Andrejevic argues that the idea of surveillance originates from the industrial era when it was used to multiply the productivity of factory workers, but in the age of interactive technologies the main use for it has become to stimulate consumer desires to the point of multiple consumption categories (234). The development of surveillance has been marked by the need to move beyond the workplace and into monitoring consumer habits and lifestyles.

Originally the responsibility of advertisers and market researchers, the actual work of producing information about consumers has been delegated to consumers themselves in the age of interactive technologies. As already stated, the harvesting of information is completely voluntary and compensated to the consumer by providing them with convenience, or as Moulier-Boutang calls it, the access to life. After all, several years from Edward Snowden's dramatic disclosure of planet-wide electronic mass surveillance by the United States intelligence community the average individual does not appear to lose much sleep over it. The unsettling realization here is that mass surveillance backed by new technologies, networking

and human beings themselves are fused into a new entity which is simultaneously a god and a worshipper of profit and control.

The contradictory combination of the new awareness of privacy rights, individualism and creativity with the need for mass control and exploitation has led to the schism in the very core identity of the United States. Trachtenberg argues that the post-Civil War American middle class was the catalyst for the widening of the chasm seen today between the idealistic and the real nature of the United States. The Northern ideal was that all labor deserved its reward for hard work and that institutions should be free and an individual should be independent, while the excess wealth and capitalists in general were seen as incompatible with the myth of freedom and innocence.

Yet, other, more affluent members of the middle class saw personal wealth as the epitome of what America is, the land of opportunity, and by the same token, the poor were to blame for their own material misfortune (Trachtenberg 73). The marginalization and discontent of labour was not caused by the issue of wealth itself. Indeed, the labour theory of wealth as posited by Trachtenberg, was that all wealth comes from someone's labour, and this in turn signals the simple fact that anyone can go socially upward through their work. This thinking aided the industrialization and it retained some credibility among worker classes as long as the gap between the wage worker and the capitalist remained passable (75). It was only when the post War Southern states began making 'right to work' laws which enabled the breaking up of worker's unions and effectively weakened the workers' negotiating position for upward social mobility.

Aside from the obvious problems with unemployment and the lack of robust social security apparatus, the US faces a paradoxical decline in its ability to wage war against other major powers. Paradoxical because, while the US has the entire world under the looking glass and

the most advanced and best-funded military in the world, its neoliberal policies of outsourcing its manufacturing base, such as automobile industries and a slew of other consumer products to countries such as China and other Asian countries undermine its ability to mobilize its industrial base in potential conflicts with Russia and China, the latter of which is industrialized in part thanks to the US outsourcing.

While this may seem as a minor and irrelevant point in the overall scheme of cognitive capitalism it really illustrates the transnational character of the post-Keynesian economy which is spearheaded by the ostensibly patriotic neoliberal figures in the United States' highest offices of state power such as the Congress.

Where the first pilgrims escaped Europe and its feudal socioeconomic system, today's State of the Union is that America not only failed to make a more just and humane society but it is probably safe to say that today's expansion of exploitative power of the latest, cognitive, capitalism is an outgrowth of the slave based system of the 19th century American South. The American Civil War ended with a political victory for the Southern economy which not only remained strong but it expanded world-wide. The victory, however, is neither clean nor certain, since major powers such as Russia and China seemingly accepted the US-established global economic order but in actuality are working within it to undermine the US supremacy. Thus the conflict of dominant capitalism against subversion in its own ranks, and the more ground cognitive capitalism gains, the more it has to deal with insurrectionary tendencies of the subjugated.

10. Conclusion

Sterling and Gibson juxtapose the societal influence of Karl Marx and Charles Babbage on 19th century England with the two locked in the opposing camps of proletariat and the automation of manufacture and economy. The contest between the two sides is never resolved; it only subsides and flares at intervals. The thought processes involved in the production of wealth today are extremely different from the ones in the heyday of Keynesian economy. It is easy to point out the change in today's consumer mentality or 'wetware' as Moulier-Boutang calls it, on the example of consumer goods today, more specifically consumer electronics. Whereas in the industrial economy, the carrier of the material value was the quality end product, or hardware, in the last 30 or so years the emphasis has shifted to software. The television set produced twenty years ago was built to withstand constant use for decades, while today's TVs are produced according to a different philosophy. The hardware is sleek and weak, while the real (but ephemeral) value lies in its faulty software and its networking capabilities. The main emphasis on software and the deliberately low quality of the end product are meant to encourage a continuous demand for the product which in turn reinforces production itself. That is the main significance of the evolving cognitive capitalism, the quiet, covert and willing incorporation of the consumer as an additional resource and the source of value in its productive processes. There is no active resistance to cognitive capitalism. Instead, the only enemy to cognitive capitalism are the contradictions that it itself creates such as the information propriety that is supposed to be an economic value but is contradicted by the core feature of the system, namely the free access to information. This is capitalism which is naturally profit-driven and exploitative, yet is inclusive of people of any social standing. Babbage's quest for more efficient and less error-prone computerized economy is pursued with more and more advanced machinery and the novel's ending where human faces are just avatars of the omnipresent Artificial Intelligence is a nod to what actually is happening in

today's corporate cultures in the US and the rest of the West. In the end, Gibson and Sterling correctly describe the self-reinforcing fusion of economy and technology and its impact on the society as a whole, and in order to make an educated guess about the future they simply turned to past iterations of capitalism and the new technologies that they brought with them, and which in turn made those variations evolve further. Sterling and Gibson show that far from being obsolete, the yin and yang of Marxism and Capitalism are locked in practically centuries old struggle which continues to haunt the historical development of civilization and how it will end, if it ends at all, is anyone's guess. In other words, there is no 'end of history', only a blind repetition of it which ironically involves ever increasing intellectual firepower with every iteration.

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12. Abstract

This paper examines the latest development of capitalism called cognitive capitalism and its characteristics that differentiate it from the industry-based society through literary science fiction, more specifically, the alternative history novel *The Difference Engine.* This novel is examined within the framework of Moulier-Boutang's theory of cognitive capitalism for signs of economic, social and technological trends, such as social inclusion in economic production of value, free access to information and networking. Furthermore, contradictory effects of information propriety and endangered privacy of individuals are explored. Much of the issues of cognitive capitalism identified by Moulier-Boutang are present in the work of Sterling and Gibson. The increasing informatization of the society and economy are depicted as causing the extinction of certain small businesses, and the booming of mass media and the entertainment sector as evidenced by the importance of computerized cinema theatres in London. The convenience of information access has rendered much of the urban population indifferent to the privacy-intruding computerized surveillance. Furthermore, the disenchanted masses of unemployed who are not included in the new economy (which constitutes a cognitive capitalism contradiction to its policy of horizontal distribution of labor) feel alienated by the society and instigate a rebellion amidst the environmental disaster in the city (a negative economic externality affecting the biosphere) against the perceived oppressiveness of the regime. Finally, the computer-controlled system is constantly evolving to the point of removing human influence from the decision-making loop. With these points of convergence of today's economy and yesterday's fiction we turn towards the United States, particularly its South which is argued to be the cradle of modern day neoliberalism. In this short outline of neoliberal origins it is established that the regional economic interests of the South have superseded the social welfare inclination of the US as a whole and took the lead not just in the country but also in the rest of the world. In the end, the conclusion is that science-fiction, or

The Difference Engine in particular did not really try hard to predict the future of society but it merely reflected the changes that were already underway at the time of the writing (Reagan-era America and Margaret Thatcher UK). This in turn means that the rapid transformation of the ways in which capitalism operates is nothing new. The advancement of technology makes it more flexible and this enables it to negotiate its position with consumer society by offering convenience and instant communication in exchange for economic exploitation of privacy. In other words, generation of profit and production of value are the same end goals that they have always been.

13. Keywords

Cognitive Capitalism, Surveillance Issues, Social Friction, Social Mobility