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Abstract

Enlightenment beliefs in progress, development, growth, civilizing process and evolution have played a central role in the history of social science. After two world wars, influential scholars like Horkheimer, Adorno and Gehlen came to question Enlightenment premises. Science could no longer be taken as the paradigmatic human activity, as an activity that discovers truth. Yet, in spite of what such critical scientists had declared, enlightenment beliefs persisted in much scientific work. In this article, I endeavour to show to what extent Enlightenment premises underlie and permeate in the works of social scientists, and how the different political attitudes and mentalities of scientists are intricately related to different manifestations of such beliefs. This article provides a narrative of illustrative scholarly works, to show how such different attitudes and mentalities have shaped the making of social science throughout the history of modern politics. The purpose of such an overview of scientists is to rethink the vocation of social science in general, and political science in particular, by problematizing the relationship between science and Enlightenment premises – a relationship that, it is argued, has become more ambiguous in the current epoch.

Keywords: bio-industrial civilization, Enlightenment, history of social science, ideology, neo-Darwinian paradigm

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Introduction

When social science developed in the nineteenth century, Enlightenment premises guided its historical development as intellectual endeavour. Social science was an Enlightenment science. Premises like progress, the superiority of the West, the worth of technological development, the merits of science for the benefit of humankind, and the worth of temporal life were basic, taken for granted, assumptions for the first social scientists. After two world wars, men like Max Horkheimer, Theodor Adorno, Arnold Gehlen and C. Wright Mills had declared that, with the event of the Shoah, the era of Enlightenment was over and Enlightenment premises were declared dead. Science could no longer be taken as the paradigmatic human activity, as an activity that discovers truth. As Gehlen (1980: 102) put it, 'the Enlightenment era appears to us at an end; its premises are dead.' Yet, many social scientist continued to ground their works in such dead premises. After the Shoah, there was a collective denial that the Age of Enlightenment was actually over and the Modern Era had come to an end. In fact, the modern world that was in ashes was to be re-build, and social science was to take a part in that reconstruction work.

The aim of this article is to show, in narrative form, how enlightenment premises underlie and permeate the historical development of social science, and how the different commitments of social scientists have shaped social science throughout the industrialization process. In the form of a narrative, past scientists, or past social scientific issues and discussions, are re-interpreted, re-formulated and connected with present social science, as an endless process of developing social science. It is narrated that enlightenment premises, in spite of being declared dead after the Shoah, continue to shape social science in the new era of what in this article is labelled as 'bio-industrial civilization' – a new post-industrial society organized around a neo-Darwinian paradigm and bio-technological issues of securing life, survival, health, body repair, growth, hygiene and fitness. This article paper is arranged as follows. The first section deals with the original use of Enlightenment premises in the early social scientific works of Alexis de Tocqueville and Auguste Comte, with the aim of showing how such premises reveal contrasting political attitudes and mentalities. In the second section, the persistence of Enlightenment premises in social science as an academic discipline, in the industrial era of 1850-1945, is explored. It is argued that, working in the Modern Era, Enlightenment premises powerfully legitimated social science's arrival and expansion in the university. In the third section, the persistence of Enlightenment premises in the Cold War era is discussed. In this period, various scholars came to criticize Enlightenment premises, which they held responsible for the catastrophes of the twentieth century, including the Shoah, yet, such critiques did not result in an emancipation of social science from dead Enlightenment premises. On the contrary, influential social scientists continued to build their works on dead Enlightenment premises while expressing their commitments to Enlightenment ideals in the thermonuclear civilization of the Cold War era. In the final section, the question regarding the relationship between social science and new bio-technological developments, largely sustained by neo-Darwinian premises of Enlightenment, is addressed. In the current stage of the development of social science, it is argued, the relationship between social science and dead Enlightenment premises has become most ambiguous in the era of 'bio-industrial civilization'.

The 'New Science' of the Enlightenment

When social science came to development in France, under the July Monarchy of the 1830s, the structural transformation from an aristocratic and rural order to a democratic and industrial order in the making was the main concern. Enlightenment beliefs in the progress of civilization informed early science, as the

making of the modern era was to be thought of as an actually or potentially improved condition vis-à-vis the bygone era. What this progress entailed for the early social scientists depended on their relationship to the Age of Enlightenment and their particular commitments to particular sets of enlightenment values. For Comte, social science in general, and 'sociology' in particular, was to be the new science of and for the new industrial civilization in the making. For him, socialism, technology and technocracy were the main fruits of the enlightenment movement, a movement that he so strongly identified with the works of Newton, Condorcet and Lamarck. While Comte propounded a post-metaphysical, materialist, a-political and a-cultural account of the progress of technological civilization, his contemporary, Tocqueville, inaugurated a new science of and for a new, post-aristocratic, political situation that was characterized by relative equality of living conditions. For him, democracy, civil society and constitutionalism were the main fruits of the Enlightenment movement. The Enlightenment, the Age of Reason, which he first of all identified with the works of Montesquieu and Rousseau, was to be fulfilled in a democratic civilization. Democratic civilization was the civilization of enlightened people who were literate and who could think for themselves.

For Comte, social science was the science of progress par excellence. It was organized to explain and promote the advance of humankind from some original condition of unenlightened primitiveness to a superior condition of Enlightenment (Nisbet, 1980: 255). Comte's key Enlightenment premise was that the so-called superior condition of industrial or technological civilization emerged due to the development of Newtonian science. This new science was characterized by an Enlightenment vision of nature, namely, nature conceived of as technology, that is, as a gigantic clockwork. This modern vision enabled the new physics to disclose nature's secrets and thereby increase human welfare (Comte, 1974: 192; Janika, 2008: 16). In Comte's science the Newtonian belief in clockwork mechanisms persisted: not only nature but also civilization operates as a clockwork (Nisbet, 1943; Hawthorn, 1976: 69). Hence, for Comte, the Age of Enlightenment was shaped by Newtonian beliefs. Social science was a Newtonian enterprise, 'social physics' in his own words. Just as Newtonian physics had managed to predict and control the whims of nature, thereby enabling humankind to protect itself against the primitive harshness of nature, social science could predict and control the whims of civilization. In other words, social science would enable humankind to protect itself against the non-enlightenment of war, crime, ignorance, fear and poverty (Comte, 1974: 101).

Tocqueville's new science was also a science of progress, albeit progress for him meant the democratic progress of equality. For him, the Age of Enlightenment had manifested itself in the abolition of slavery, serfdom and hereditary privileges, the widening of citizenship rights, the substitution of parliamentary for absolute government, equal justice before the law instead of differential justice, and so forth (Tocqueville, 2000: 6). In contrast with Comte, Tocqueville did not believe that Newtonian science had been the engine of such progress. In fact, he noted that Newtonian science, such post-metaphysical materialism, may actually endanger political freedom in democratic civilization, in the sense that it paved the way for technocratic rule and enlightened despotism that Tocqueville feared and that Comte promoted. For Comte, indeed, political freedom was never a supreme value. Comte believed that political freedom or self-government promoted social disorder and halted the progress of Newtonian science. Comte wished to abolish those institutions that Tocqueville believed were key in the Age of Enlightenment, including representative institutions, dialogues, and extra-parliamentary publics. And Comte promoted those Enlightenment institutions that Tocqueville found harmful to political freedom, such as centralized technocratic administration (Aron, 1991: 231, 234). In sum, Comte and Tocqueville both employed Enlightenment premises in their respective attitudes towards science and intellectual mentalities, but, given

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their political attitudes, they were committed to contrasting sets of Enlightenment ideals; and hence they dreamed of different types of modern civilizations in which such ideals could be realized.

The Legitimizing Force of Enlightenment Premises

When social science further developed in the 1850s, it was strongly identified with the Enlightenment premises employed by Comte. Herbert Spencer worked to transform the Comtean enterprise into a more systematic science (Carneiro and Perrin, 2002; Cahoun, 2007; Olfer, 2010). Spencer, however, broke with Comte's Newtonianism and instead accepted Lamarckian biology and British political economy, including Malthusianism, as a paradigmatic Enlightenment premise. From Lamarckian biology, Spencer borrowed the idea of evolution, which, for him, was the master law that operated throughout the universe, both in nature and society. In 1852, Spencer introduced the theory of the 'survival of the fittest'. The 'fittest' were those who were able to survive and modify their habits and beliefs to changing environments; and dared to take individual initiatives by engaging in the free enterprise and spontaneous association of a free market economy (Bowler, 1988: 14; Renwick, 2012). When social science became an academic discipline, the first academic social scientists, operating in a capitalist industrial civilization, widely embraced Spencer's Enlightenment premises.

This is not to say that the Spencerian attitude was uncontested. Scientists like Frederic Le Play, Emile Littré, Gustave Le Bon and Gabriel Tarde continued to ground their works in the Enlightenment premises associated with Comte (Heilbron, 2009: 34, 42). When Louis Liard, then head of the higher education department of the Ministry of Public Instruction established the first sociology chair in France at the University of Bordeaux in 1895, social science as such was strongly identified with the works of Comte (Hawthorn, 1976: 121; 127; Karady, 1983: 75; Weisz, 1983: 93). Sociology in particular, for Liard, was the new pedagogical science of Enlightenment that fitted into the reformed university system, whose goal was to promote the Enlightenment ideals of the Third Republic (c.f. Masson, 2012). When Emile Durkheim came to hold this chair, he, although he explicitly identified the Age of Enlightenment with the works of Montesquieu and Rousseau, initially continued along the Comtean path. Before his appointment, in *The Division of Labour in Society* (1893), Durkheim had employed Comtean premises, while after his appointment he moved into Tocquevillian directions. Confronted with the rampant individualism, narrow materialism, anomie and weak cohesion in the Third Republic, Durkheim turned his efforts to issues of democratic progress and mindful consciousness (Durkheim, 1971; Durkheim, 1992: 84; Besnard, 1983). Durkheim was the first academic social scientists to deviate from the Comtean trajectory, developing a social science that, eventually, came closer to Tocqueville than to Comte (c.f. Aron, 1991).

Meanwhile a new type of social science developed in Wilhelmine Germany (1871-1918), where German scientists linked up social science to the German Enlightenment (Oppenheimer, 1932; Aron, 1978; Meja et al, 1987; Harrington, 2012: 73). German social science was organized around cultural pessimism and critique of industrial capitalism, partly derived from the works of Karl Marx (Meja et al, 1987: ix). The German social scientists of the Weimar era developed critical and tragic visions of industrial civilization, in which technological progress was perceived as a cruel and debilitating process. People were being dwarfed to the level of an uncultured mass of herd animals. Max Weber, for instance, deplored the mechanization of the German university, the very centre of the German Enlightenment. Instead of realizing the *Bildungsideal*, in the cultivation of the mind, the German university was increasingly subjected to the industrial demands of division of labour, specialization, standardization and team work.

When social science chairs and departments were established by different nation-states, the meaning and significance of science, relationships with other academic disciplines (particularly physics and

biology), Enlightenment premises and commitments to Enlightenment ideals came to differ, according to the uses social science had for different national regimes that shaped different nations. In the 1920s and 1930s, however, Comtean and Spencerian science was delegitimized as a result of the crises, the disenchantment with laissez faire capitalism, and the spectre of another world war (Shils, 1980: 291, 311; Camic, 2007: 228). When the Nazis rose to power in 1933, critical German scientists were forced into exile (Jay, 1973; Steinmetz, 2007: 326). Frankfurt school scholars like Max Horkheimer and Theodor Adorno published their *Dialectic of Enlightenment*, in 1944, which became the archetype for post-war critical social science and the most radical critique of Enlightenment premises without giving up Enlightenment ideals. Horkheimer and Adorno, for whom Enlightenment had turned into 'mass deception', suggested that the rise of totalitarianism in industrial civilization, characterized by an urge towards myths, the rise of gangster violence, and the prominent role of industrial technology in eliminating opponents, had been fuelled by an Enlightenment project that inspired conquests of nature. Yet, such Enlightenment, characterized by Newtonian, Lamarckian and Darwinian beliefs, had failed to liberate civilization from the fetters of anti-Semitic and fascist myths (Cohen, 2010). For critical scientists, the Holocaust was the ultimate sign of the closing of the Age of Enlightenment. With the event of the Shoah, as well as the Gulag archipelago, Enlightenment premises were declared dead.

The Persistence of Enlightenment Premises during the Cold War

In the Cold War era, the development of social science in the Western bloc was typically informed by the persistence of dead Enlightenment premises and a continuation of commitment to Enlightenment ideals. Social scientists, committed to the Spencerian Enlightenment premise of evolution, turned into post-Spencerian direction. They redeveloped an 'evolutionary' science of Enlightenment that could legitimize the post-war liberal welfare state and hence help defeating anti-liberal totalitarianism. Talcott Parsons wondered 'who now reads Herbert Spencer' (Calhoun and VanAntwerpen, 2007: 382; 387; Owens, 2010), arguing that the welfare state, more than the unregulated market that Spencer had promoted, was best capable of promoting welfare and of transcending ideological antagonism (Parsons, 1964: 339). Alexander Carr-Saunders, William Beveridge, Thomas Humphrey Marshall, and Richard Titmuss all believed that the liberal welfare state would eventually and gradually eliminate the unfit individuals, such as the unemployed, uneducated and the poor, so that a fit, enlightened, capitalist nation would emerge that would be strong enough to withstand totalitarianism. T.H. Marshall (1953), for instance, presented the welfare state, and in particular the education system, as a mechanism for sifting, sorting and distributing the fittest individuals into the top positions of the nation. The liberal welfare state, in their view, had become the engine of evolution.

Comtean scientist came to develop post-Comtean types of science. Sorbonne scholar George Gurvitch argued that the Newtonian Enlightenment premises on which Comte had grounded his social science had been surpassed by the new (post-Newtonian) physics of men like Albert Einstein, Niels Bohr, Werner Heisenberg, Erwin Schrödinger, Max Planck, and Louis de Broglie (Bosserman, 1995). Relativity theory had discredited the Newtonian premise of space and time as absolutes. Quantum theory had shattered the Newtonian ideal of being able to control nature through the knowledge of the laws of nature. Gurvitch took the new physics as paradigmatic for a new Comtean science. In line with the new physics' definition of nature, industrial civilization was now restyled as movement or flow of opposing tendencies and unexpected shifts and crises that could not be domesticated. While Parsons had believed that Soviet totalitarianism was destined to collapse because in the so-called evolutionary process it was less adaptive

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than the liberal welfare state, Gurvitch thought that Soviet totalitarianism would fail because social matter was chaotic and hence beyond central planning and state control (c.f., Boudon, 1980: 1). Gurvitch's contemporary, Raymond Aron, moved into a Tocquevillian direction (Aron, 1991; Curtis, 2004; Davis, 2008). Unlike Gurvitch, Aron did not think that totalitarianism would simply, by itself, one day collapse. Aron believed that totalitarianism stemmed from political slavery and un-enlightenment. Totalitarianism could therefore only be combated if oppressed people would come to think and act for themselves, liberated from the fetters of myth and ignorance.

While, after the Second World War, post-Spencerian, post-Comtean and Tocquevillian scientists were preoccupied with legitimizing liberalism and delegitimizing Soviet totalitarianism, other scientist, including Frankfurt School scholars, struggled to make sense of the Shoah. Norbert Elias held that the Shoah was a temporary de-civilizing process that took place in the evolutionary march of civilization (Dunning, 1998). The post-war welfare state was, in his view, the engine of the civilizing process after the bygone catastrophes. For Gehlen, on the other hand, both the Soviet state and the welfare state were power complexes based on dead Enlightenment premises. Gehlen emphasized that the Cold War era was different from the Age of Enlightenment, in the sense that the Cold War era was characterized by the awareness that increased mastery of nature did not result in more freedom and liberation from myth. The Cold War era, Gehlen stressed, was characterized by doubt, disillusionment, gloom and despair, while, given the use of science and high technology for genocidal and dehumanizing purposes, the worth of technological development was contested. Like Gehlen, C. Wright Mills (2000: 165; 166) observed that 'we are at the ending of what is called The Modern Age' and he declared that 'the Modern Age is being succeed by a post-modern period.' The premises of the Enlightenment, rationalism, although these had been essential to the development of democratic civilization, had become impediments to the preservation and progress of democratic societies. As one implication of this observation, Mills (2000: 166) emphasized, liberalism, the most important ideological product of the Enlightenment for the Western bloc, no longer provided an adequate explanation of the world and of Western people. And the same was true for socialism, the most important ideological product of the Enlightenment for the Eastern bloc. Both ideologies had become intellectually bankrupt, bereft of rational foundations.

With the death of Enlightenment premises and the corresponding advent of the post-modern period, Mills argued, social scientists and political thinkers could not legitimately legitimize the liberal welfare state (Harvard scholars like Parsons and John Rawls did legitimatize the welfare state). The liberal welfare state, for Mills, was far from being a legitimate, self-evident, social order – an order dictated by the laws of evolution. In his view, the liberal welfare state was a military-industrial complex that preserved powerful vested interests and condemned the powerless – the so-called unfit – to regimented passivity and alienation (Shils, 1980: 78; Camic, 2007: 241). In line with Tocqueville, the purpose of science, Mills claimed, was to provide intellectual input so that freedom could be sustained in a democratic civilization of publics, which, for him, was the only valid alternative to totalitarianism. Dropping the premise of Enlightenment rationalism, Mills argued that a radical imagination was the chief instrument of fostering a democratic civilization. Mills' views were popularized in the 1960s, when a generation of baby boomers openly made protests, at the very moment when liberal welfare policies had been fully implemented, against various patterns of domination in the existing capitalist nation. Christopher Lasch (1984: 205) announced the intellectual bankruptcy of liberalism and liberal social science, while Alvin Ward Gouldner (1971) sought to liberate social science from the liberal reform agenda, and to compel social scientists to reflect on their own relationship to the power structures of the welfare state (Osborne and Rose, 2008: 575). For Gouldner, any genuine science was to be critical of any ideology, be it liberalism or socialism.

The Neo-Darwinian Re-Articulation of Enlightenment Premises

After C. Wright Mills announced the closing of the modern era in the 1950s, many social scientists came to witness the birth of a new, post-modern or post-industrial era in the 1970s. When the Cold War entered its final stages, nuclear physics – 'the pace-setting science' in the thermonuclear civilization of the Cold War era, as Michel Crozier (1984: 33) noted – was slowly losing its prestige at the expense of biology. Since James Watson's discovery of DNA in 1953, and the development of DNA technologies in the 1960s and 1970s, nuclear physics gradually lost its privileged position in post-industrial society. The neo-Darwinian life sciences, which were considered a synthesis of experimental genetics, associated with the discoveries of Gregor Mendel and Darwinian ideas of natural selection, became hegemonic in the new industrial era of dead Enlightenment premises (Anker et al, 2008). Social phenomena, like poverty and ignorance, were increasingly interpreted according to the language, standards and methods of the life sciences. Society was a contingency. The mind, including consciousness and imagination, was no longer the point of a Enlightenment process of humanization and emancipation from myth, dogma and superstition, but became identified with the brains, and the brains became identified with DNA. The demarcation lines between social science and biology had once again become blurred but in an unprecedented fashion. For, it was no longer 'biology' but a so-called 'hybrid' version of biology that was involved. While biology had still recognized something called 'nature', the new bio-technologies had come to ensure what Anthony Giddens (1991: 219) identified as the 'end of nature'. This was, for him, the distinctive mark of the 'post-modern period' Mills had announced. The Enlightenment premise of 'nature' as something contrasted with 'society' was dead due to bio-technological development.

Social scientists tended to disagree with each other as to the proper place of social science in this new era. Giddens followed the lead of his predecessor T.H. Marshall by welcoming the liberating potentials of the new bio-technology. Marshall had advocated the 'emancipatory politics' of the liberal welfare state (reforming Victorian capitalism via education systems). For the 'post-modern period', Giddens (1991: 215) promoted 'life politics', a new form of politics that presupposed biological indeterminism and the mutability of genetic make-ups. 'Life politics' implied that welfare policies did not so much try to reform the global capitalist structures of the post-Cold War era as to transform 'life', that is, to reconfigure living matter (micro-organisms or genes). According to Giddens (1991), new bio-technologies, including genetic engineering, assisted reproduction, regenerative medicine, stem cell technologies, technological implants, and so forth, did not close the era of Enlightenment but were key tools for generating new welfare. According to Gary Runciman, the new era was defined by the neo-Darwinian paradigm. Social science, if it was to survive and develop in bio-industrial civilization, was to adopt the neo-Darwinian paradigm, including its language (such as memes) and its icons (Runciman, 2008; Olfer, 2010; Pickel, 2012; Renwick, 2012: 13). Runciman (1998) saw the relevance of the so-called 'selectionist paradigm' as an Enlightenment premise for social science. This paradigm is based on the idea that social change can be explained as a process analogous but not reducible to biological mechanisms like the drift of natural selection.

Hence, Giddens and Runciman made a plea for developing a new social science that could be adapted to the new realities of bio-industrial civilization and the prestige of the neo-Darwinian paradigm in that civilization, without breaking with Enlightenment premises. While Parsons and Marshall had organized a liberal social science for legitimizing the welfare state in the Cold War era, Giddens and Runciman developed a new science for legitimizing the place of social science, and social scientists, in a bio-industrial civilization. And, while Mills had rejected the ideological legitimization of liberalism because genuine social science could neither be grounded in dead Enlightenment premises nor be a welfare state science, Michel

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Foucault rose as a critic of the political complex of bio-industrial civilization. Foucault stressed that in bio-industrial civilization people were being regulated to fit their bodies to what he called 'disciplinary arrangements of power'. Bio-industrial practices, like investing in genes, boosting cognitive powers, repairing memory loss of the brain, and reducing genetic risks of diseases, belonged to the domain of bio-political domination, Foucault insisted (Lemke, 2001; Meyer-Emerick, 2007; Blencowe, 2010). Foucault suggested that social science was not to legitimize bio-industrial practices but to criticize and negate the new types of bio-political domination.

Other critical scholars explained that in bio-industrial civilization the neo-Darwinian paradigm had become a set of hegemonic dead Enlightenment premises mainly because of the urge to repair biological organisms in a sickening industrial environment. Ivan Illich (1994) emphasized that biological organisms, including human bodies, had weakened in the Age of Enlightenment, due to technological progress. A sickening industrial environment, characterized by ecological catastrophe, had made that 'nature' itself had become precarious in the Modern Era. Similarly, Ulrich Beck (1992) noted that the real possibility of ecological disaster, such as the Chernobyl catastrophe, was defined by the unintended consequences of Enlightenment premises. Potential catastrophes, caused by the technological mastery of nature, had come to define the social condition of the new era – a frightening condition which the very survival of the human species is at risk. Following Tocqueville and Mills, Beck (1992: 200) argued that the possibility of transcending the potentially catastrophic condition depended on the development of democratic civilization, rather than on bio-technology and trans-humanism. In other words, social science was not to embrace the Enlightenment premises of the hegemonic neo-Darwinian paradigm, but to partner up with extra-parliamentary protest movements, like the ecological movement, so as to contest the very legitimacy of the bio-power complex of bio-industrial civilization.

No contemporary social scientist has communicated a more acute awareness of the urgency of the bio-industrial civilization and the hegemony of the neo-Darwinian paradigm and its implications for social science than Steve Fuller (2006). Fuller argued that social scientists needed an updated version of Mills' radical imagination of the 1950s, to be able to grasp the contemporary revolutionary structures of the bio-industrial civilization. The essence of the latest industrial revolution, Fuller (2011: 103) explained, was the convergence of technologies – 'the integration of cutting-edge research in nano-, bio-, info- and cogno-sciences for purposes of extending the power and control of human beings over their own bodies and their environments.' Like Illich, Fuller (2011: 38) claimed that in bio-industrial civilization the state had come to prioritize the sheer production of novel organisms over the provision of adequate sustaining humane environments for them. New organisms were produced which could survive in a sickening industrial environment while the power structures that shaped the sickening social and natural environment themselves were being sustained. Fuller (2006: 12) identified this life-scientific focus on the organism and neglect of the social/natural environment as the core of what he called 'bio-liberalism', a new liberal ideology organized around the Enlightenment premises of the neo-Darwinian paradigm (Fuller, 2006: 201; 197; Vrecko, 2008). For bio-liberals, educational performances, health, productivity and social mobility were no longer the achievements of the welfare state but were mainly determined by genetic makeups.

Nikolas Rose (2010), following a Foucauldian line, pointed out that such bio-liberalism imposed a neo-liberal, consumerist ideology on self-identity. In particular neuroscience, Rose explained, had gained an expanding global market for regenerative medicine. Neuro-psychotropic drugs designed for boosting cognitive powers and emotional fitness were in high demand. 'Nature', a key Enlightenment premise, was reorganized as 'bio-capital', which legitimized the modification and improvement of organisms through bio-technology (Rahaman, 2011; Williams, Higgs and Katz, 2012). While Foucault and Rose identified the neo-liberal character of bio-political domination, Michael Burawoy emphasized that a bio-industrial civilization

and a democratic civilization are hard to reconcile. Similar to Mills, Burawoy pointed at the illegitimacy of the new ideologies such as bio-liberalism and neo-liberalism while noting that the social structure of bio-industrial civilization was not at all a democratic one. Like Gouldner, Burawoy (2005a) held that there was a need for a new reflexive social science, patterned on new attitudes and academic mentalities, to prevent the further devaluation of democracy in industrial civilization, and to generate a democratic society of publics. Quite contrarily to Runciman, who sought to transform social science in accord with the Enlightenment premises of a hegemonic neo-Darwinian paradigm and locate social science within the structures of bio-industrial civilization, Burawoy (2005a) made a plea for a public science that would raise public awareness of the immanent dangers of today's sickening global capitalist environment. Grounded in Enlightenment premises of democracy, the purpose of such a new science of politics was to inform the extra-parliamentary publics, in particular the global protest movements, of democratic civilization as the ultimate fulfilment of the Enlightenment.

Concluding Remarks

When Gehlen (1980: 102) insisted that the premises of the Enlightenment era were dead, he found that the consequences of such dead premises continued to operate. In the post-war reconstruction of social science, many social scientists have continued to ground their works on Enlightenment premises, dead and highly contested as these may have been, which is to say that social science, as an intellectual achievement, has hardly been able to emancipate itself from Enlightenment premises and move beyond the Era of Enlightenment. Critical scholars, like Horkheimer and Adorno in the 1940s and Mills in the 1950s have argued that for social science to be a liberating and democratic, anti-totalitarian force, it is absolutely necessary to renew science, to make it fit for a new, what Mills called 'post-modern' era. Such a new science, developed for a new era, would recognize the dark side of Enlightenment rationalism, the eclipse of reason and science becoming a political tool of reification or arbitrary fixations of reality and other forms of domination in (post-) industrial civilization, both in the Western and in the Eastern bloc. Such new, critical science was based on the political attitude and intellectual mentality that, after the Shoah, science was no longer the critical, emancipatory or liberating area of culture it had been in the Age of Enlightenment, at least in Western Europe. Others, like Raymond Aron and Robert Nisbet, argued that transcending Enlightenment premises was an impossible task for social scientists, as long as scientists continued to operate within the ideological complexes of industrial civilization (liberalism and socialism).

The project of grounding social science on dead premises reveals that science was, to quite an extent, embedded in a power complex, such as the liberal welfare state and the totalitarian state, that governed a particular historical era of industrial civilization. Emancipation from this power complex appeared a difficult task. When Enlightenment premises were declared dead in the Cold War era, many social scientists such as Marshall and Parsons, in search for a place for social science during the Cold War era, tied up social science with the power complex of the liberal welfare state. For such scientists with liberal attitudes and bourgeois mentalities, the welfare state was the new engine of evolutionary progress, destined to defeat the totalitarian alternative. Those like Mills and Gouldner who saw liberalism as intellectually bankrupt once the Age of Enlightenment had come to a close, linked up social science with democratic publics and extra-parliamentary protest movements (like the New Left movement), in the hope that these would be spheres developing the radical imagination needed to move beyond the Modern Era. They identified social science as a cultural and political project – a project of humanization, transcendence and democratization. For them, social science was a science of Enlightenment in the sense of critique and

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protest of power and ideology: not technology but the democratic quality of mind what was mattered for social science. Hence the critique of industrial technology was key for developing academic imagination and reflexivity.

Such critical and reflexive science has struggled to finds its place in industrial civilization. When during the Cold War, Western civilization turned thermonuclear and the new physics became the pace-setting science ('atoms for peace'), social science could find its place in such a civilization through its ideological anti-authoritarian agenda and its contribution in the struggle against working class radicalism or communism. The new bio-industrial or bio-technological condition made it necessary to re-pose the question regarding the place of social science in the so-called 'post-modern period', and correspondingly, its relationship to the life sciences and bio-power (Machalek and Martin, 2004). Ever since industrial civilization turned increasingly bio-industrial and the neo-Darwinian paradigm became predominant, science has struggled in its relationship to the peculiar power complex of bio-industrial civilization. Fuller (2006) identified this technocratic power complex as bio-liberal, that is, a trans-humanist type of neo-liberalism in which the bio-medical industries are the ascendant mode of production. Social scientists have been in search for legitimacy of their science in this power complex. Some, like Giddens and Runciman, have made a plea for adjusting to this new reality and adopt the neo-Darwinian paradigm for scientific undertakings. Hence, the making of a bio-liberal social science just as Parsons had, after the Great Depression, created a liberal science for the liberal welfare state, in the Cold War fight with totalitarianism. In such views, democracy could be theorized as a side effect of a process of natural selection. Others, like Beck and Burawoy, have pointed at the potentially catastrophic consequences of bio-industrialization and have called for a social science that links up with a democratization mission, democratic quality of mind, radical reflexivity and the protest movements of today.

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