
Introduction: the world of production and political economy

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This volume provides a comprehensive overview of research, key concepts and debates on the international political economy (IPE) of production. It adopts an expansive approach to the topic, encompassing research that would not immediately be recognized by conventional definitions of the research area. Only thus can it cover key aspects of production as the transformation and exploitation of nature, the most fundamental and universal of human practices. This understanding of production necessarily includes the exploitation of the natural substratum of humanity itself. Marx formulated what remains the *locus classicus* of this when he characterizes the process of production in *Capital*, volume I, as

a process between man [*Mensch*] and nature, a process in which man mediates, regulates and controls his metabolism with nature by his own action. He confronts the substance of nature [*Naturstoff*] as one of its own forces, setting in motion arms and legs, head and hands, the natural forces of his body, in order to appropriate what nature yields in a form useful for his own life. Whilst influencing and changing external nature in this movement, he simultaneously changes his own (*MEW* 23: 192).

Now if production is a ‘unifying characteristic’ of historical human existence (Harrod 1997: 108–9), the question arises why this is not evident in the social sciences today. In this introductory chapter I answer this question, first, by looking at the key mutations in the combination of mental and manual work, with special reference to the concept of the socialization of labour. Second, I briefly investigate how social science originated in the quest for controlling the labour process and the working class. Yet labour paradoxically disappeared again as a unifying concern once the disciplinary organization of the social sciences took shape in the nineteenth and twentieth centuries. I then address the issue that runs through the first two parts of the collection, the geographical and social bifurcation between mental and manual labour and the possibility of their coming together again. Finally, I briefly discuss those aspects of the anchorage of production in reproduction and nature that are not covered in detail in Part III.

MENTAL AND MANUAL WORK

From a broad historical perspective, labour, or production, which we today recognize as a general category, began as the ability to make and use tools. This then guided the further evolution of the human mind and body, as captured in Marx's definition above. In all pre-modern societies, the actual process of (manual) work was separated from activities usually considered worthier, such as magical-religious tasks and contemplative activities, in other words, 'mental work'. Hence in most societies labour was associated with low social status, if not actually assigned to slaves. Manual work was further divided in the most elementary menial tasks like cleaning and food preparation, often the preserve of women; and skilled work that made it worthwhile to try and control access to its legitimate performance, as by the medieval guilds. These passed on the specific skills of their craft through a closed system of apprenticeships. One of the achievements of the *Encyclopédie* of Diderot and D'Alembert, eventually codified by the French Revolution, was the divulgence of the secrets of the guilds.

Science early on developed separately from work. Like art, its magical and religious connotations kept it in the domain of contemplation as an activity for those not forced to work. Like mathematics for the natural world, systematic philosophy followed in the footsteps of art and religion in transcending the 'meso-cosmos' that our minds have organically developed in – thus exploring the macro- and micro-worlds that lie beyond our direct experience (Vollmer 2013: 147–50). In the Italian Renaissance an important step in applying such abstract projections back into the sphere of actual production happened when the builder of the dome of the cathedral of Florence, Brunelleschi, sought the advice of the city's leading mathematician, Toscanelli, to help him with problems his craft had no solution for (Sohn-Rethel 1970: 123). Galileo a century later took a step further into the macro-cosmos when he built his own telescope to verify Copernicus' hypothesis that the earth circles round the sun, widening the sphere of fruitful application of pure thought in doing so. But he also combined mental with manual work in a way that reversed the inherited hierarchy between the two (Meeus 1989: 48).

The genius of Galileo and contemporaries like Leonardo da Vinci was long interpreted in terms of 'universal humanity' (the late-nineteenth-century ideal of the *Übermensch* formulated out of unease over advancing mass society by Burkhardt and Nietzsche, cf. Deppe 1997: 11–13). However, universal humanity actually took a much less glorious road in achieving its miracles. Beginning in response to opportunities for wool exports to the Flanders manufactures, the enclosures of common lands in late-medieval England produced the mass of wage-dependent labourers

on which the emerging capitalist mode of production relied, as it still does today. The Humanist, Thomas More, in his *Utopia* famously characterized the early process as ‘sheep eating men’. English craft workers soon found themselves outpriced by the human surplus expelled from the villages and employed as unskilled day labourers. The craftsmen’s defeat in the struggles against machine production and the backlash against the French Revolution in England eventually led to what E.P. Thompson calls ‘a long counter-revolution’, covering the twenty-five years after 1795 (Thompson 1968: 888). In the early nineteenth century, English wages were pushed so low as to make hunger the main regulator of the labour market. As Karl Polanyi infers (1957: 117), ‘From the utilitarian point of view the task of the government was to increase want in order to make the physical sanction of hunger effective’. It entailed the degradation of humanity on which the Industrial Revolution was premised, a fate worse than slavery (see McGrath and Strauss, this volume, for these distinctions).

Capitalist industry produced miracles compared to which the boldest technical designs of Leonardo remain child’s play – on one condition: that the mass of humanity brought under the command of capital can be operated as a single force. This control passed a critical threshold in the closing decades of the nineteenth century with the so-called second industrial revolution. Capitalists involved in the new, integrated iron and steel, heavy chemicals, shipbuilding and other large engineering industries looked to ways of raising labour productivity by intensifying work whilst keeping a close watch on how life evolved in working class neighbourhoods.

This quest was most acute in the United States and Germany, which did not enjoy the advantage of income from large colonial empires as did Britain and France. Scientific management, associated with Frederick W. Taylor’s time-measurement experiments in the United States in the 1880s, devised a system of breaking down the worker’s job into separate movements which could be streamlined into a more fluid, ergonomic series and paid by piece-rates – assuming the worker’s core motivation was for higher pay. ‘Taylor was guided by the concept of energy, a nodal point in the positivism and bourgeois culture around the turn of the century,’ Vahrenkamp writes (1976: 15), ‘and this guided his attempt to find out “how many metric kilos a worker can possibly achieve in one day at the lowest cost”.’ Or in Gramsci’s words,

Taylor is in fact expressing with brutal cynicism the purpose of American society—developing in the worker to the highest degree automatic and mechanical attitudes, breaking up the old psycho-physical nexus of qualified professional work, which demands a certain active participation of intelligence, fantasy and initiative on the part of the worker, and reducing productive operations exclusively to the mechanical, physical aspect (Gramsci 1971: 302).

Today, as documented in this collection, a differentiation has evolved in the context of the global political economy between locations where this process is still in full swing, such as in Asia, and a concentration of control functions in the metropolises, or heartland, of the capitalist world economy. Here too a measure of ‘intelligence, fantasy and initiative’ has also been allowed back into the labour processes immediately adjacent to ‘tertiary’ activities concentrated there. In addition, to varying degrees and again with huge regional disparities, the evolution of labour processes continues to require ‘initiatives [that] have the purpose of preserving, outside of work, a certain psycho-physical equilibrium which prevents the physiological collapse of the worker, exhausted by the new method of production’ (Gramsci 1971: 303).

Mental and manual labour thus are connected into a complex but ultimately single grid again. The process is captured by the notion of *socialization of labour* (more accurately, ‘societization’); in the German original, *Vergesellschaftung*. Socialization of labour refers to the separation of tasks (mental/manual, and further sub-divisions) and their reconfiguration into a composite social labour process. Without the latter aspect, we are only looking at division of labour per se; with the control element added, there is actual socialization, the creation of mutual dependence and complementarity into a social bond, a *Gesellschaft*. In the Marxist tradition, the concept was anchored in the progress of production, and linked to the prospect of social transformation (e.g. Marx in *Capital*, I, *MEW* 23: 790, or Marx 1973: 832). The compensatory aspect of preserving an equilibrium outside of work that Gramsci refers to, on the other hand was theorized by Max Weber as *Vergemeinschaftung*, ‘communitization’. Weber sees it as a factor compounding every rational process of socialization with emotional, affective bonding (Weber 1976: 21).

The mechanization of the labour process, applying science to the sphere of production, is an instance of mental and manual labour coming together in a specific format favourable to controlling the workers. ‘Machinery is not neutral because the machine incorporates the dexterity and the skill of the individual worker who is henceforth deprived of [it] and subordinated. . . to the machine’, writes Palloix (1976: 53); ‘the separation of the mental from the manual part of work is materialised in the machines themselves’. The transformation of *homo faber* into *homo fabricatus*, by which Jürgen Habermas denotes the reversal of the relation between the producer and the tools into which the skills have been objectified (Habermas 1971: 82), hence is never a merely technical process, a matter of a subject-less artificial intelligence as in Stanley Kubrick’s masterpiece, *2001: A Space Odyssey* (when the computer, HAL, takes over the space mission after discovering that the two pilots doubt its judgement).

Socialization of labour, both by dividing tasks between living labourers and by mechanizing their jobs through the objectification of skills into machines or work organization, always remains a social relation, premised on authority guiding the ‘collective worker’. In capitalism, this guidance is provided by the discipline of capital over society and nature, which is passed on to each separate unit of functioning property by competition, both in the sphere of production and of reproduction. I have elsewhere (van der Pijl 1998: chapter 5) argued that this comprehensive process of socialization engenders a social stratum, or cadre, of functionaries entrusted with planning and supervisory roles in both spheres.

This takes us to our second theme in this introduction, the connections between the changes in the labour process and the growth of the social sciences including IPE.

LABOUR DISCIPLINE AND DISCIPLINARY SOCIAL SCIENCE

Disciplinary social science has its origins in the surveillance of populations: to monitor public health, keep a check on working conditions, or for other reasons. In the course of the nineteenth century this surveillance specifically came to focus on industrial workers, both on the shop floors of large-scale heavy industry and in the working class residential areas of the big cities. The original surveillance infrastructure of populations emerged in response to the French Revolution. The Anglo-Irish parliamentarian and writer, Edmund Burke, warned in his *Reflections* of 1790 (1934: 23, emphasis added) that ‘a state without the means of *some change* is without the means of its conservation’, and from 1815 onwards biannual reports to Parliament on the lower classes in England provided the information to make the necessary adjustments. This practice soon spread to the United States, notably in the state of Massachusetts (Derber 1967: 21).

In the English-speaking countries religion was initially seen as the best means of regimenting the workers outside of the factory. In Andrew Ure’s *Philosophy of Manufactures* of 1835, Thompson writes (1968: 395), ‘we find a complete anticipation of the . . . case for the function of religion as a work-discipline’. Ure saw in religious discipline a ‘moral machinery’, as important to the factory owner as his mechanical machinery. His fellow Utilitarian, Jeremy Bentham, by that time was beginning to think of alternatives to religion, which proved less and less effective in this respect. Bentham’s calculus of pleasure and pain offers a different method of control of worker behaviour. Hence Foucault’s claim (2004: 76) that ‘the

utilitarian philosophy has been the theoretical instrument which has supported the novelty of that period, the government of populations’.

The theory of the self-regulating market from the utilitarian perspective functioned as ‘a mechanism of rewards and punishments that would ensure effective order in social relations’ (Gammon 2008: 273), but the labour theory of value at its heart was becoming a potential liability. From Grotius and Locke to Smith and Ricardo this theory had served to legitimate property obtained through work (rather than by hereditary title). But what if the industrial workers would seize upon it as *their title* to a decent life? Hence from John Stuart Mill onwards, conceptions of political economy were being floated which played with the idea that wealth did not result from work, but from entrepreneurial initiative, or from property *per se*.

In the 1870s W. Stanley Jevons generalized this perspective into a different value theory altogether when he declared utility (‘marginal’, i.e., measured by the last unit added) as the source of value. After taking up the chair in Political Economy at the University of London in 1876, Jevons elaborated the axiom of self-interest into a deductive system. He also rebaptized the field ‘economics’, since ‘erroneous and practically mischievous’ ideas about political economy were circulating and were ‘becoming popular among the lower orders’ (quoted in Meek 1972: 88n, 90n). Thus labour was removed from the codex of understanding the economy at the same time that the field of ‘political economy’ was narrowed down to a psychology of choice modelled on entrepreneurial decisions – whether or not and where to invest (and ‘give work’), what to produce, and so on; and the same for investor decisions and also, consumer decisions. Everybody thus is made into the equivalent of an entrepreneur, the human ideal of bourgeois economics.

In the Restoration on the European continent, the focus on social control inspired the separation of another branch of social science, sociology. In France, Auguste Comte and Émile Durkheim, and in Germany, the *Kathedersozialisten* (‘socialists of the lectern’) of whom Max Weber was the most renowned exponent, reflected on how the world of work might be disciplined through more or less subtle forms of class compromise. This made sociology into what Therborn calls (1976: 225), ‘an investigative instead of a dogmatic guardian of the ideological community’. Thus after economics, a British field par excellence, a second field branched off from general political economy: sociology; although in Germany, it remained part of the *Staatswissenschaften* identified by Immanuel Wallerstein (2001: 192) as a ‘current of resistance’ to Anglophone liberalism.

In the United States the coming of monopoly capitalism with its scientific management of socialized labour, also resonated in the social

sciences. When Taylor was called before a Special Committee of the US House of Representatives in January 1912, he explained his methods as ‘a complete mental revolution’ both for the working man and for ‘those on the management’s side – the foreman, the superintendent, the owner of the business, the boards of directors’. ‘Without this complete mental revolution on both sides scientific management does not exist’ (Taylor 1947: 27). Such a revolution would of course not leave the structures of higher education outside its purview. This did not so much take the form of a research focus on work, but of a Taylorization of intellectual labour itself through the academic disciplines as we know them today.

It is often forgotten that, as Andrew Abbott reminds us (2001: 123), ‘the departmental structure appeared only in American universities’ and was adopted elsewhere only much later. Indeed from the 1880s on, higher education in the United States was subjected to repressive control as businessmen began to replace clergymen on university boards. A series of spectacular dismissals and academic freedom cases led to a situation in which ‘academic men in the social sciences found themselves under pressure to trim their sails ideologically’ (Hofstadter 1955: 155). In addition, Henry S. Pritchett, president of MIT, a railway director and president of the influential Carnegie Foundation for the Advancement of Teaching, in 1909 commissioned Taylor to produce a blueprint for the scientific management of US universities. The report, by an associate of Taylor’s, advised that the ‘guild structure’ of academic life be broken up and a labour market created for academics, with competition fostering ‘greater research and teaching specialization by faculty as a condition for promoting more intensive mass production’ (Barrow 1990: 71–3). Intimidated by attacks on socialist or otherwise socially concerned scholars, the disciplines, organized in national associations to watch over the definition of their fields and control access to expert knowledge, retreated into their own domains, ‘shattered and torn from any holistic underpinning’ (Harrod 1997: 108).

Intellectually, Taylorism was translated into a positivist social science methodology that took its cue from the functional psychology of William James and his fellow Pragmatists, and from the animal experiments of the Russian, I.P. Pavlov. This behavioural perspective no longer assumed a substantive consciousness but focused on controlling reflexes and responses to stimuli (O’Neill 1968: 133). In actual labour studies it was soon to be contested by the Harvard psychologist, Elton Mayo, who became the founder of the ‘human relations’ school of industrial psychology on the basis of his experiments at the AT&T telephone plant in Hawthorne, Illinois. These experiments brought out that team spirit, not economic or ergonomic stimuli, was the most important factor in raising

productivity (Whyte 1963: 37). ‘The battle between the Taylorist and the Human Relations schools,’ Jeffrey Harrod writes, ‘essentially that between two schools of thought on how to enhance labour productivity’, would permeate all the social sciences including international studies. Actual labour studies also remained a separate discipline, a branch of sociology. Up to the early 1970s, this ‘had the potential for, and was moving in the direction of, *connecting workplace to world order*’ (Harrod 1997: 110, 112, emphasis added; Harrod, this volume).

However, if positivist Behaviouralism and interpretive approaches such as Constructivism today resonate across academia, this is no longer explicitly connected to the world of work. Economics has moved away from the world of production from the time of the Marginalist revolution; the discipline concerned with world order, International Relations (IR), had no interest in economics. Codified in the slipstream of Woodrow Wilson’s intervention in Europe at the close of World War I, (political) IR specifically served to sideline the remaining bastion of historical materialist critique, the theory of imperialism. With it, ‘IPE’ disappeared from the academic radar screen.

One effect of the crisis of the Cold War order from the late 1960s to the mid-1970s, was the shaking up of the different branches of academic orthodoxy. Economic wisdom was being challenged by the monetary crisis and stagflation in the capitalist West; the oil price hike, Vietnam and other neo-colonial wars upset the balance of forces between the West and the dominated periphery. Comparable shocks in the state-socialist world, from the Czechoslovak experiment with democratizing and/or liberalizing socialism to the Chinese cultural revolution, highlight that this was a transformation not just of the world order, but of the deeper productive and reproductive structures of society on a world scale.

The student and worker revolts of the period also entailed a resurgence of Marxist ideas, both within and outside academia. Within the mainstream, business economists like Raymond Vernon addressed the challenge to national state sovereignty posed by transnational corporations (TNCs) (Vernon 1973). This in turn generated a debate as to whether TNCs made the realist analytical model of IR (in which states alone are seen to be the essential actors) implausible, and whether the international system should not be understood in more ‘pluralist’ terms (Gilpin 1975). Relative outsiders like former financial journalist Susan Strange, then teaching at LSE, also called for the emancipation of IR from the realist frame of reference. The states of the West in Strange’s view (1972: 192) constitute an ‘alliance of the affluent’ waging a ‘class struggle’ against the Third World, only to find themselves locked in a simultaneous struggle with ‘an invisible adversary, the unruly market economy which somehow

they must subdue if they are not to risk social and political disruption'. In addition, this period saw the first, often dramatic calls for rethinking the human impact on the Earth's biosphere, such as the *Limits to Growth* report (Meadows et al. 1972).

International Political Economy (IPE) by then had established itself as a subfield within IR. Its boundaries, as Katzenstein et al. write (1998: 645), 'have been set less by subject matter than by theoretical perspectives'; in other words, IPE presumes an acceptance of different philosophical frameworks. Yet work and production were still largely absent from this opening; in the first major attempt to absorb and contain the intellectual disarray within the IR discipline, the Harvard conference on transnational relations convened in 1970 by Robert O. Keohane and Joseph Nye (Keohane and Nye 1973: xi), the labour movement was only one 'case'. The Roman Catholic church, revolutionary movements, the Ford Foundation, and of course the TNC in its relation to the state system, were the others, all in an obvious effort, perhaps more by habit than intentionally, to generalize the phenomenon (of transnational relations) away from its most contentious forms.

Certainly the rediscovery of Gramsci's notes on Fordism and the work of writers like Robert Cox (the author of the labour paper in the Keohane and Nye collection) taking this forward into the realm of a revitalized IPE, has brought back production as an area of study, connected to the study of world order (Cox 1987; Gill 1993). Actual labour relations studies, now conceived as 'human resource management' and once again unrelated to the structure of the global political economy, on the other hand have been shifted into the domain of business schools in the context of the neoliberalism that took hold in the 1980s. Yet today as never before, the connection between work as the transformation of nature and the structures of power in the world, requires urgent examination.

TWO TRENDS IN GLOBAL PRODUCTION AND THE OUTLOOK OF LABOUR

The socialization of labour in the early twenty-first century covers the entire globe; the product or commodity chains approach is one way of capturing the process theoretically (Gereffi and Korzeniewicz 1994; Selwyn, this volume). This is not a straightforward 'globalization', but a transnational process in which productive capital is necessarily nested in different 'human resource complexes' (Harvey 2006: 399). Such complexes are held together by cumulative class compromises cemented by religion and education, and hence are difficult to change. States, among other

things, serve to demarcate one or more human resource complex(es) and through their trade and currency policies regulate their links with others; capital in turn seeks to exploit cost and regulation differentials between state jurisdictions. After several failed attempts to place TNCs under a system of controls (nationally, regionally or via various proposals to create a New International Economic Order under the United Nations), capital has recaptured the high ground. The NAFTA and EU common markets, to be merged in a projected and still contested Transatlantic Trade and Investment Pact (Bizzari and Burton 2013), are testimony to this.

The process of socialization of labour is thus modulated by human resource complexes fixated both in state territorialities (and in offshore enclaves through which host states commercialize their sovereignty, Palan 2003), and transnationally, across the world economy as a whole. As Charles Bettelheim puts it, the socialization of labour as a result evolves ‘through a structure of specific complexity, embracing the structure of each social formation and the world structure of the totality of social formations’ (Appendix I in Emmanuel 1972: 295, emphasis deleted). Or in Harvey’s words, ‘peoples possessed of the utmost diversity of historical experience, living in an incredible variety of physical circumstances, have been welded, . . . often through the exercise of ruthless brute force, into a complex unity under the international division of labour’ (Harvey 2006: 373; cf. 404 and Milios and Sotiropoulos 2009).

Capital exploits this transnational structure by combining activities parcelled out across different human resource complexes, and different circuits of capital (money and productive capital in particular) into historically specific structures of socialization. Thus the ‘working relationship’ between the United States and China combines production for export in China with a flow of funds that keeps the United States, which consumes much more than it can actually pay for itself, afloat – paradoxically allowing it to lay siege on China militarily, a process that must sooner or later force the Chinese leadership to reconsider its political and economic strategy. This it can do as long as it keeps in place the state prerogative that limits the free circulation of capital (Arrighi 2007; Fingleton 2008).

Whilst high-quality manual labour in sectors associated with the most advanced production technology remains ensconced in the West, the most prominent component of the workforce in this part of the world is the cadre (managers, engineers, professionals). They are directing labour processes *across* the ‘structures of specific complexity’: both the metropolitan structures of socialization and the product/commodity chains connecting distant manufacturing with developed markets. This has resulted in a world map of productive and other paid work that shows a functional differentiation between cadre functions and circulation activities (clerical,

Table I.1 Cadre, productive workers and workers in circulation activities in the economically active population, selected countries, 2008

	United States	Germany	France	Japan	Mexico	Indonesia
Total in thousands	154 287	41 875	27 983.5	63 850	43 866.7	102 552.8
Cadre*	35.1%	38.7%	37.8%	17.5%	18.4%	7.4%
Productive workers**	23.0%	21.9%	22.0%	35.1%	37.0%	52.8%
Circulation workers***	41.3%	22.1%	22.6%	46.2%	25.4%	21.7%

Notes:

Not counted: elementary occupations, unclassifiable, army, unemployed.

Definitions (not identical in different national statistics): * managers, professionals, technicians; ** agricultural, craft, industrial workers; *** clerical, sales & service workers.

Source: Calculated from ILO *Laborsta*. Economically active population, by occupation and status in employment.

sales, etc.) concentrated in the West as mental labour; whereas productive activity as manual labour has a much greater weight in Asia and Latin America, both developed and underdeveloped. Table I.1 illustrates this for selected countries (China is not included in the ILO data from which the table was compiled).

Of course the share of agriculture in a country like Indonesia is much larger and productivity levels are much lower. But the point is that the people *producing* things are relatively more numerous outside the West, with Japan already showing a quite different structure of the workforce (more comparable to Mexico than to the US and EU). Production is therefore integrated on a world scale, but because of the different jurisdictions across which it extends, it is both global and local, a condition sometimes labelled 'glocalization' (Ruigrok and Van Tulder 1995). The chapters in Part I of our collection, 'Restructuring the global political economy', document in depth the driving forces of this process and the different forms it takes, not just at the lower-end extremes of the product chains spanning the globe, but also in the service sector.

As a result of the ability of capital to diversify across the global structures of socialized labour, production in the core economies has tended to abandon the integrated assembly lines of Fordist mass production favourable to labour. Sometimes these have been replaced by 'craft communities' organized around regional nodes and with a particular ethnic identity

(Piore and Sabel 1984: 265–6). The development of quality circles in large production complexes likewise has worked to parcel out the structures of socialized labour into separate entities again (Hoogvelt and Yuasa 1994; Ihara, this volume). The deepening of the impoverishment of many Third World and former Soviet bloc societies in addition has set in motion what Saskia Sassen calls ‘a new phase of global migration and people trafficking’, processes which ‘used to be national or regional and today operate on global scales’ (Sassen 2010: 32–3, and this volume; Delgado Wise and Martin, this volume). However, the evacuation of the traditional large-scale factory, premised on historic defeats of the labour movements in the West and Japan (documented in Part II), also poses new challenges to capital. One consists of the possibility that the global socialization of labour may give rise to what Jeroen Merk calls the emergence of the collective worker in the product chain (Merk 2004, and this volume). This is a reference to Marx’s notion of a socialized workforce, ‘whose combined activity expresses itself materially and directly in a comprehensive product’ (Marx 1971: 226, emphasis deleted).

From the above it would seem that as far as production is concerned, the most urgent issue that will decide whether the destructive exploitation of society and nature by capital will be halted by something resembling such a collective worker, resides in combining the advancing labour movement in the periphery with the post-capitalist impulses animating the cadre in the West and Japan. Didn’t Marx theorize how the forces immanent in capitalist socialization were laying the foundations of what he called, in *Capital* vol. III, the ‘associated mode of production’ (*MEW* 25: 485–6), along these lines? On the one hand, he argues there, governments will find themselves compelled to take control of the financial world, which by its increasingly fraudulent operations jeopardizes ongoing production; on the other, the ‘collective worker’ is seen to become a reality also in the consciousness of the producers as the socialization of labour within and between units of production demands a rational, planned structure liberated from the competitive hunt for profit. Thus in the garment-exporting countries in South-East and South Asia and Central America, complex forms of struggle take place in which workers, with the support of Western-based NGOs such as the Clean Clothes Campaign, have secured alliances with consumers and enlightened management of the branded companies organizing the chains (Merk 2009: 606). In this way at least a section of the cadre in the West have acted to mitigate excessive exploitation across the product chain, suggesting possibilities to turn the ‘collective worker’ into a conscious social agent.

So on the one hand, we have ‘traditional strategies of labour to protect itself against exploitation, turning the global supply chain into a barrier

both for organizing and collective bargaining' (Merk 2009: 605–6). Contemporary labour struggles in China (Chan, Pun and Selden, and Jang and Gray, this volume) thus feed into wider strategies, of which the Asian Floor Wage campaign documented in the chapter by Anannya Bhattacharjee and Ashim Roy, would be an example. This trend of an increase in worker militancy and social conflict, which as Beverly Silver argues in her chapter, historically accompanies the world market movement of capital, is one component of the current evolution of class struggles on a world scale.

There is a second trend, concentrated much more, but not exclusively, in the metropolitan centres of the capitalist heartland. This concerns the possibilities created by new technologies. Not only do new technologies facilitate the operation of global product/commodity chains as integral, planned processes, but they also enable new forms of production which may altogether transcend the commodity form on which market transactions and private appropriation are premised. Just as information technology suspends the separation of publishers and readers characteristic of print media, it works to destabilize the 'ownership of the means of production' once 'information' is no longer held exclusively by capital as a knowledge monopoly, but will tend to be shared with employees (Boccaro 2008: 127, cf. 118).

The potentially greater autonomy of qualified professionals performing control functions as a managerial–technical cadre, has been responded to by 'knowledge management'. In this way capital seeks to re-establish discipline on mental labour by the 'identification, codification and application' of knowledge, in a 'quest to harness, monopolize and systematize' knowledge circulating and accumulating in a company (Chumer et al. 2000: xvi). Permanent auditing and self-assessment, as well as access to all communications including employees' emails, becomes mandatory to realize this (McInerney and LeFevre 2000: 15, cf. 11). Ultimately the aim is to gain hold of the socialized knowledge of these professionals so that it can be applied by less qualified personnel; for example doctors' diagnoses by nurses, professors' teaching by junior assistants, and so on. But even where the socialization of specialized knowledge into standardized packages (owned by the employer, like a Microsoft programme) succeeds, a complementary process is needed to keep knowledge workers under a market discipline. Regulatory standardization, as documented by Jean-Christophe Graz in Chapter 8, is one strategy; another is self-employment.

Self-employment has emerged as a major route towards creating market dependency but it also has brought to light profound contradictions. For unlike traditional factory workers, who are completely dispossessed of any means to make a living on their own, and whose labour therefore comes

under the heading of what Marx calls *real subsumption to capital*, self-employed knowledge workers operate at arm's length from this discipline, under the regime of 'formal subsumption', which is inherently incomplete and unstable (Marx 1971: 197–8). Indeed whilst the fluidity of capital movements in money form and its derivatives evokes the postmodern concept of a universally mobile, all-sided functional human being who has cut him/herself off entirely from any inner constraints in order to be able to exploit any market chance (Harvey 1990), for the self-employed professional (maybe for all professional cadres), the question arises as to why this universality should remain only at the disposal of capital and the market.

From this inner tension, Oskar Negt deduces (1997: 16) that we are actually living in the twilight zone between two economies. One is the seemingly immutable rule of capital, under which living labour power must be manipulated into serving the needs of the system; the other instead evokes a 'second economy', the contours of which become visible as the irrationality of the system becomes ever-more apparent in financial swindle and in human misery, war and ecological degradation. In this second economy, necessary labour is enlarged by forms of activity that realize our humanity more profoundly, rewarding social-ecological responsibility and creativity (Negt 1997: 29). This points to a fundamental departure which at this stage can only be discussed in terms of potential and promise. In our collection this is covered by Yury Gromyko in the concluding chapter of Part I and Alan Freeman's in Part II. The Appendix to Part II by Mehmet Gürsan Şenalp and Örsan Şenalp serves to document the growing cohorts of those qualified knowledge workers left behind by the crisis who have been drawn into activist networks.

PRODUCTION, REPRODUCTION, NATURE

The self-employed, qualified worker-turned-liberated subject that Negt sees emerging as market constraints weaken, meanwhile remains captive of a political economy in which the escape hatches are still largely shut. Often the market discipline of capital has already taken hold of the human subject, mentally and bodily. The 'quantified self' analysed by Phoebe Moore in this volume denotes a subject submitting to a regulation that is formally at arm's length, but which has internalized the rule of the market entirely in practice. Thus the exploited become administrators of their own exploitation, apparently oblivious of their ability to resist it. Indeed because of its confusingly flexible imposition of discipline, 'the new capitalism,' writes Richard Sennett, 'is an often illegible regime of power' (Sennett

1998: 10). This regime reaches deep into the personality, where it removes attitudes of dependency by substituting a precarious freedom. Yet

[t]he social bond arises most elementally from a sense of mutual dependence. All the shibboleths of the new order treat dependence as a shameful condition: the attack on rigid bureaucratic hierarchy is meant to free people structurally from dependence; risk-taking is meant to stimulate self-assertion rather than submission to what is given (ibid.: 139).

In the process the underlying mental–physical bonds are jeopardized and along with it, the integrity of the individual personality. For the process of socialization is a constitutive factor of one’s ability to function in society. Whilst on the one hand, the extreme individualization and commodification of the self (as in sex work, cf. Chin, this volume) suspends honour and familial obligation, on the other it induces a general lowering of the level of civilization. For the ‘de-socialized’, affectively impoverished human subject, the neoliberal codex of behaviour ultimately leaves only two attitudes towards others: instrumentalization or elimination. Anomic, aggressive and destructive actions as a result become more widespread as the ‘tension between a reduced capacity to act socially and the need for an active participation in social life’ intensifies (Seppmann 2013c: 74, and this volume).

The exploitation of the human, social substratum by capital has all along been complemented by the exploitation of the soil. If we think of Marx’s definition of human labour as anchored in the metabolism with nature cited earlier, exploitation occurs once the reproductive capacity of the medium with which metabolism takes place, becomes strained by the unsustainable degree of appropriation from it. In this sense the human/social substratum and the remaining natural world are not different. Marx, who studied the contemporary advances in agricultural chemistry of Justus Liebig and others, actually developed a theory of *metabolic rift* to make sense of the exploitation of the soil. This refers to the removal, along with the products of the land, of the soil’s nutrients, leaving it bare and in need of artificial fertilizer, whilst in the cities, waste accumulates without regenerative, productive application. A socialist society would have to overcome this fatal separation of urban life without nature, and an impoverished, denuded hinterland from which food is to be procured nevertheless. Instead of the a-social existence under neoliberalism by the apparent suspension of social bonds, society for Marx was always the point of reference. ‘Freedom,’ he wrote in a rare reflection on the topic,

in this sphere can consist only in this, that socialized man, the associated producers, govern the human metabolism with nature in a rational way, bringing

it under their collective control. . . . accomplishing it with the least expenditure of energy in conditions most worthy and appropriate for their human nature (Marx in *Capital*, vol. III, as quoted in Bellamy Foster 2013: 7).

The large-scale acquisition of agricultural land for export monoculture by foreign buyers or lessees, notably in Africa, increases the ‘rift’ as crops are transported to far-away destinations by the corporations that invest in land abroad. The ensuing disruption of life on the land, discussed in the Conclusion to this volume by Saskia Sassen, is often aggravated by a second major aspect of the internationalization of agricultural production: the spread of genetically engineered plants.

Thus a country like India, whilst active abroad by investing (alongside German companies) in Ethiopia, is simultaneously targeted by US corporations like Monsanto. Monsanto has gained access for biotech products like genetically modified corn and cotton and hybrid seeds, with devastating consequences for the country’s landed population – and, still largely hidden, for all of us. Between 1997, when corporate seed control started in India, and 2010, 200 000 but probably more farmers according to Indian government figures committed suicide, as they could no longer pay debts incurred to buy seeds. Vandana Shiva, the renowned agricultural activist, speaks of ‘a negative economy, . . . an agriculture that costs more in production than the farmer can ever earn’; she singles out Monsanto’s biotech Bt cotton as the major cause of suicides (quoted in Louv 2013: 20–21).

Certainly there are also positive developments such as the recourse to peasants’ indigenous knowledge, or even entirely novel ways of organizing agriculture and overcoming metabolic rift (cf. Kay, this volume). Whether the various dislocating effects of the global reorganization of production under the auspices of capital will be brought under control remains to be seen. The present collection brings together insights on which such a reversal – towards a rational economic geography, the emancipation of labour, and the safeguarding of the biosphere without which human life cannot exist – will be premised. In the final analysis the fate of the Earth and its inhabitants will depend on the active engagement of those striving for a better society.