

## THE “GENERAL INTELLECT” IN THE *GRUNDRISSE* AND BEYOND

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Many Italian Marxian theorists have long insisted on the importance of the section in the *Grundrisse* known as the “Fragment on Machines,” the sole place in Marx’s corpus where the term “general intellect” is used (Turchetto 2008; Toscano 2007, Wright 2005).<sup>1</sup> *Historical Materialism* has begun to make contributions to this current accessible to non-Italian readers such as myself. This paper will discuss the essays by Paolo Virno and Carlo Vercellone published in this series.

### PRELIMINARIES

The “Fragment on Machines” forms a part of Marx’s discussion of *relative surplus value*, which results from productivity advances lowering the costs of wage goods (taking the level of real wages and the length of the working day as given). These advances enable the time devoted to necessary labor (that is, the time spent producing a value equivalent to the wage) to be reduced, thereby increasing surplus labor and, consequently, surplus value.

Productivity increases can be won in a variety of ways. The simplest is social cooperation (MECW 28/441). For many types of labor processes, at least, a number of workers cooperating together can produce more than the same number laboring separately for the same period of time.<sup>2</sup> Increased specialization in the labor process can have the same effect (MECW 29/155). But the project of increasing productivity would soon reach its limit if instruments of production were taken as given. A third manner of increasing relative surplus value is based on the transformation of these instruments from

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<sup>1</sup> In the Marx Engels Collected Works (henceforth “MECW”) the editors assign a different title to this section: “[Fixed Capital and the Development of the Productive Forces of Society].” I would like to note that while the term “general intellect” is not used in the chapters on machinery in the *1861-63 Manuscripts* or the chapter “Machinery” in the first volume of *Capital*, Marx stressed the intrinsic connection between relative surplus value and the systematic tendency for the scientific-technical knowledge to play an increasingly important role in the production process. This is the concept of the general intellect, even if the term itself is not employed. Just as the term “capital in general”—which is also not used after the *Grundrisse*—remains central to the logical framework of *Capital* (see Moseley 1995), the notion of the general intellect was not abandoned in Marx’s later writings.

<sup>2</sup> Cooperating workers can also produce goods and services it would be simply impossible for workers laboring separately to make.

*tools* controlled by workers to *machines*.<sup>3</sup> Machines overcome the limits of human dexterity in tool use by operating with a precision and regularity human agents cannot match. And they overcome the limits of human strength when they are powered by motors, such as the steam engines of Marx's day. It follows that the revolutionizing of the instruments of production is not a contingent feature of capital. It is an essential determination of the capital form, culminating in fixed capital invested in vast systems of machinery:

Once included into the production process of capital, however, the means of labour passes through a series of metamorphoses until it ends up as the *machine*, or rather as an *automatic system of machinery* ... In the machine, and to an even greater degree in machine[ry] as an automatic system, the means of labour is transformed, with respect to its use value, i.e. to its material character, into a form adequate to fixed capital and to capital in general (MECW 29/82).<sup>4</sup>

Of course "it is the analysis and application of mechanical and chemical laws—originating directly from science—that enables the machine to perform the same labour as was previously performed by the worker" (MECW 29/89). This form of relative surplus value extraction therefore presupposes that "all the sciences have been forced into the service of capital ... invention becomes a business, and the application of science to immediate production itself becomes a factor determining and soliciting science" (MECW 29/90). This brings us to the notion of "the general intellect":

The development of fixed capital shows the degree to which society's general science, KNOWLEDGE, has become an *immediate productive force*, and hence the degree to which the conditions of the social life process itself have been brought under the control of the GENERAL INTELLECT and remolded according to it (MECW 29/92; words in blocks originally in English).

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<sup>3</sup> The specialization of tasks necessarily tends to be accompanied by a specialization in tools. While this in itself does not count as a distinct mode of producing and appropriating relative surplus value, from a historical perspective it does set the stage for the emergence of machinery.

<sup>4</sup> However, as Marx also notes, "On the other hand, as far as fixed capital is confined to its existence as a particular use value, it does not correspond to the concept of capital, for capital as value is indifferent to every particular form of use value, and can with equal indifference adopt or shed any of them as its incarnation" (MECW 29/84). From this standpoint it financial capital that bests "corresponds to the concept of capital."

Marx then describes how the powers of the general intellect, embodied in fixed capital, appear alien to individual workers:

In no respect does the machine appear as the means of labour of the individual worker. ... (T)he machine, which possesses skill and power in contrast to the worker, is itself the virtuoso. It possesses a soul of its own in the laws of mechanics which determine its operation ... The activity of the worker, restricted to a mere abstraction of activity, is determined and governed in every respect by the movement of the machinery, not vice versa. Science, which compels the inanimate members of the machinery, by means of their design, to operate purposefully as an automaton, does not exist in the worker's consciousness, but acts upon him through the machine as an alien force, as the force of the machine itself (MECW 29/82-3).

From this perspective individual workers are not simply incorporated into capital's process of self-valorization formally as variable capital (to use a term Marx introduces after the *Grundrisse*). Living labor is now incorporated materially into capital-in-production as a "living accessory" of the machine:

In machinery, objectified labour confronts living labour in the labour process itself as the power which dominates it, a power which, in terms of its form, as the appropriation of living labour, is capital. The incorporation of the labour process into the valorization process of capital as merely one of its moments is also posited materially by the transformation of the means of labour into machinery, and of living labour into a mere living accessory of this machinery, as the means of its action (MECW 29/83).

With this preliminary overview of the "Fragment on Machines" completed, we can turn to Virno and Vercellone. Their main theses will be considered under four headings: the type of category the general intellect is, the manner in which it is institutionalized in contemporary capitalism, and the degree to which this institutionalization renders Marx's value theory, and his theory of crisis, outdated.

#### **FOUR ISSUES REGARDING THE GENERAL INTELLECT AND THE CONTEMPORARY PERIOD**

##### *1. The "General Intellect" as a Historical Category*

Virno and Vercellone both read the “Fragment on Machines” as a contribution to the study of capitalism’s historical development. The narrative begins with a period in which workers were *formally subsumed* under capital, hired as capital by capital to produce a product owned by capital, in a labor process overseen by capital’s representatives. But the content of the labor process itself, including the use of instruments (tools) in that process, remained under their direct control. This historical period is associated with absolute surplus value, resulting from extensions of the working day to increase surplus labor time. When the limits of the working day were reached, capital turned to the *real subsumption* of labor under capital, associated with relative surplus value. This first took the form of specialization in the labor process (“detail labor”) and specialization in the tools used in that process. Then came the period of “big industry” described in the “Fragment on Machines,” with massive productive apparatuses reducing laborers to mere appendages.

In this reading the general intellect is a historical category, introduced to describe the industrial revolution with its historically unprecedented development of scientific-technological knowledge, embedded in the systems of machinery confronting living labor. It is also a historical category in that in the “Fragment on Machines” the general intellect plays a crucial role in Marx’s anticipation of future developments in world history.

## *2. The “General Intellect” and the Development of Capitalism from the Industrial Age to the Contemporary Period*

When Marx wrote *The Grundrisse* he anticipated a historical transition from the industrial capitalism of his day to communism. The main line of thought can be roughly summarized as follows:

1. Capital necessarily tends to seek productivity advances.
2. Productivity advances are based on the general intellect.
3. The general intellect requires free time to flourish.
4. Productivity advances in capitalism lessen necessary labor time, in principle providing the precondition for more and more people to enjoy the free time for creative learning and experimentation that would enable the general intellect to flourish.

5. But capital reduces necessary labor time only in order to increase surplus labor time.
6. The increase of surplus labor time *prevents* more and more people from enjoying the free time of creative learning and experimentation that would lead the general intellect to flourish.<sup>5</sup>
7. Capital therefore both provides the precondition for the general intellect to flourish and simultaneously undercuts the possibility of its actual flourishing.
8. That contradiction worsens over time.
9. This ever-increasing social irrationality will lead to communism with free time for creative learning and experimentation for all.

Marx's historical projection did not come to pass. According to Virno and Vercellone, this was not because Marx was mistaken to think that the further development of the general intellect was incompatible with the production relations of the capitalism of his day. It was. But Marx underestimated the ability of capitalism to mutate in a way that allowed the general intellect to expand beyond scientific-technical labor in the narrow sense, and its ability to incorporate the social energies of this expanded general intellect.

Both Virno and Vercellone emphasize the underlying continuity between the technologies and forms of social organization of Marx's day and the twentieth century "Fordism."<sup>6</sup> In their account this extended period was dominated by the mass production of standardized commodities in a labor process ruthlessly separating conception and execution. Hegemonic units of capital took the form of large-scale vertically-integrated firms; living labor within those units took the corresponding form of the "mass collective worker." Scientific-technical knowledge was the monopoly of engineers and other technocrats, usually allied with the owners and controllers of capital. In the labor process the mass collective worker was thoroughly alienated from both fixed capital (machinery

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<sup>5</sup> "Since all *free time* is time for free development, the capitalist usurps the *free time* created by workers for society, i.e. civilisation" (MECW 29/22).

<sup>6</sup> There are good reasons to be wary of the category "Fordism" (see Brenner and Glick 1991). For the purposes of this paper, however, I shall assume there are theoretical contexts in which a suitably qualified version of the category may be used legitimately.

and machine systems) and the underlying scientific-technical knowledge.<sup>7</sup> So far, Virno and Vercellone would say that their story simply repeats Marx's, apart from the acknowledgement that this historical period extended far longer than Marx anticipated in the 1850s.

Virno and Vercellone also agree when "Marx ... suggests how the deepening of the logic of real subsumption can create conditions favourable to a collective reappropriation of knowledges insofar as 'living labour' is able to reconvert a part of its surplus labour into free time" (Vercellone 2007, 28). This "collective reappropriation of knowledges" has in fact occurred. *But it has taken place in capitalism, not communism.* Vercellone in particular describes how the tremendous improvements in productivity resulting from scientific-technical knowledge encouraged a "general struggle for the socialization of access to knowledge" on the part of the work force, and provided the material preconditions for the success of this struggle (Vercellone 2007, 26). As a result, the capitalist welfare state—already committed to socializing a significant portion of the costs of reproducing labor power—began to fund mass education (Vercellone 2007, 25). Wage laborers as a class now spent an unprecedented proportion of their lives in formal and informal education and training. The general intellect was then no longer external to (alien from) living labor. Living labor became a "depository of cognitive competencies that cannot be objectified in machinery," including "the faculty of language, the disposition to learn, memory, the capacity to abstract and relate, and the inclinations towards self-reflexivity" (Virno 2007, 6). This state of affairs can be termed "mass intellectuality" (Virno) or "diffuse intellectuality" (Vercellone).

Capital today attempts to mobilize and incorporate this "diffuse intellectuality." In Virno's terminology, "Fordism" has given way to "post-Fordism," short-hand for the shift from large-scale vertically-integrated units of production employing single-purpose machinery in extended runs of standardized products ("Fordism") to flexible networks of production employing general-purpose machinery that can be rapidly reconfigured for short runs of diverse outputs without additional fixed capital costs ("post-Fordism"). The latter requires a technically sophisticated and intellectually engaged work force, rather

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<sup>7</sup> Virno claims that Marx's notion of "general intellect" refers to fixed capital alone. Vercellone is correct to deny this, since the term also refers to scientific-technological knowledge considered in itself.

than “the repetitious and segmented labour of the assembly-line.” And economic competition based on “economies of scope” (short runs of diverse products), rather than “economies of scale” (extended runs of standardized products), rewards continuous innovation in design, production, and marketing. Effectively tapping into the experience and creative insights of a broad spectrum of the workforce can give units of capital an important competitive advantage. This requires abandoning the project of reducing living labor into a mere appendage of machinery.

With these sorts of considerations in mind Virno writes that “second-generation autonomous labour” in “radically innovative factories such as Fiat in Melfi” has shown that

In post-Fordism, conceptual constellations and logical schemata that cannot be reduced to fixed capital play a decisive role, since they are inseparable from the interaction of a plurality of living subjects. The “general intellect” comprises formal and informal knowledge, imagination, ethical inclinations, mentalities and “language games” (Virno 2007, 5).

From this standpoint the general intellect is a real abstraction with “operational materiality” insofar as it “organises the production process and the ‘life-world’”:

The sharing of the general intellect becomes the effective foundation of every kind of praxis. All forms of concerted action based on the technical division of labour thereby shrink in significance (Virno 2007, 8).

Virno summarizes this point by with the provocative statement that “in post-Fordism, the tendency described by Marx [for living labor to embody the general intellect] is actually fully realized” (Virno 2007, 4).

Vercellone, like Virno, sees in contemporary capitalism “a tendential overcoming of the Smithian logic of the division of labour proper to industrial capitalism” (Vercellone 2007, 15). He, however, rejects the category “post-Fordism” on the grounds that it “essentially remains a prisoner of a neo-industrialist vision of the new capitalism,” arguing that the “great crisis” of Fordism “signals the exhaustion not only of a model of development specific to industrial capitalism but the tendential crisis of some of the more structural invariants of the long-period dynamic that opened with the first industrial revolution” (Vercellone 2007, 14). For this reason Vercellone prefers to speak of

“cognitive capitalism.” In my view, this terminological difference does not reflect major substantive disagreements. Virno’s notion of post-Fordism also explicitly incorporates developments outside the industrial factory (in specific, the rise of “mass intellectuality”), while Virno, no less than Vercellone, asserts that the continuous line of historical development from the first industrial revolution through Fordism has been broken. The most important point is that for both Vercellone and Virno contemporary capitalism is based on “the reappropriation of the cognitive dimensions of work by living labour, with respect to all material and immaterial activity” (Vercellone 2007, 16). For our purposes “post-Fordism” and “cognitive capitalism” can be taken as more or less synonymous.

### *3. The General Intellect and Value Theory*

Virno holds that the “Fragment on Machines” includes “reflections on the basic tendencies of capitalist development [that] are not to be found in any of Marx’s other writings and in fact seem alternative to his habitual formulas” (Virno 2007, 3). One of these reflections concerns value theory.

In the reading of Marx which both Virno and Vercellone appear to accept, the “value” of a commodity is measured by the homogeneous units of simple direct labor time “embodied” in that commodity. For Vercellone, value theory applies to a historical period in which “immediate labor” is measured by a certain sort of time, “the time of the clock and the chronometer,” with this time then becoming the proper measure of social wealth. The real subsumption characterizing the labor process from the early industrial revolution through Fordism truly makes this abstract labor time a material reality, since “labour becomes ever more abstract, not only under the form of exchange-value, but also in its content, emptied of any intellectual and creative quality” (Vercellone 2007, 24). In other words, real subsumption brings about

the establishment of a social institution central to the dynamic of industrial capitalism: the social norm that establishes the time of immediate labour (directly dedicated to a productive activity) the principal unit of measure and the source of the wealth derived from the development of the productive power of human labour ... The time of the clock and the chronometer as means for quantifying the economic value of labour and prescribing its operative modes thus represents, together with machinery, the essence of the economic and cultural transformation

of labour determined by the industrial revolution ... [which then] ... will flow into Fordism (Vercellone 2007, 24).

As Marx himself noted, however, as the general intellect develops the claim that direct labor remains the dominant force of production becomes ever *less* plausible:

Here [in the “Fragment on Machines” (ts)] Marx defends what can hardly be called a “Marxist” thesis. He claims that, precisely due to its autonomy from production, abstract knowledge (primarily but not only scientific knowledge) is in the process of becoming nothing less than the main force of production and will soon relegate the repetitious and segmented labour of the assembly-line to a residual position (Virno 2007, 3).

Value theory loses its explanatory force as this process proceeds. Any attempt to take “the time of immediate labour (directly dedicated to a productive activity) [as] the principal unit of measure and the source of the wealth” is now bound to fail:

From the moment in which knowledge and its diffusion is affirmed as the principle productive force, the relation of domination of dead labour over living labour enters into crisis ... The law of value founded on the measure of abstract labour-time immediately dedicated to production enters into crisis (Vercellone 2007, 27).

The collapse of value theory is completed in contemporary post-Fordism/cognitive capitalism, where living labor is no longer alienated from the general intellect. Since the labor process proper can no longer be “emptied of any intellectual and creative quality” there can be no reduction to simple labor (Vercellone 2007, 30) The “principle productive force” is now the general intellect in the form of mass intellectuality, constituted in learning processes that continue *outside* the direct labor of the factory or office:

(T)he crumbling of the traditional frontiers between labour and non-labour related to the ever more immaterial and intellectual character of labour leads to an extension of the mechanism of extraction of surplus-value to the totality of social times which participate in social production (Vercellone 2007, 30).

Under the present historical circumstances, then, we can no longer take “the time of the clock and the chronometer as means for quantifying the economic value of labour”

(Vercellone 2007, 30). And so there must be a “passage from a theory of time-value of labour to a theory of knowledge-value where the principal fixed capital is man ‘in whose brain exists the accumulated knowledge of society’” (Vercellone 2007, 31).

Virno agrees. In the free time post-Fordism grants to its work force “what is learned, experienced and consumed in the time of non-labour is then utilised in the production of commodities, becoming a part of the use-value of labour-power and computed as profitable resource” (Virno 2007, 5). He concludes::

(T)he so-called law of value (that the value of a commodity is determined by the labour-time embodied in it) is regarded by Marx as the armature of modern social relations, yet it is both eroded and refuted by capitalist development (Virno 2007, 4).

#### *4. Crisis Theory*

Virno and Vercellone both understand capitalism as a crisis-ridden system. But they do not explain the tendency to crisis in the standard Marxist terms of a falling rate of profit caused by an overaccumulation of constant capital. They present instead a theory of capitalist crisis based on the “tendential fall of the capital's control of the division of labour” (Vercellone 2007, 18).

In decisions about whether capital will take on the risks associated with the direct management of labor “the principal factor is undoubtedly the extent of domination of technology and of the knowledge on which the functions of direction and of capitalist control of the labour process rely” (Vercellone 2007, 21). This explains the slowness with which capital penetrated the sphere of production between the beginning of the 16<sup>th</sup> and the end of the 18<sup>th</sup> centuries, a period “marked by the hegemony of the knowledge of the craftsman” that forced capital to “wrestle with the insubordination of workers in production” (Vercellone 2007, 15). And it explains capital’s dominance of production after a period in which “the development of science applied to production proceed[ed] at an equal rate with the expropriation of the knowledges of workers” (Vercellone 2007, 20). Now “the compulsion to wage-labour [was] no longer merely of a monetary nature, but also of a technological nature, rendered endogenous by technical progress” (Vercellone 2007, 24).

As we have seen, however, this eventually led to the diffusion of intellectuality. Now “the traditional opposition between dead labour/living labour, proper to industrial capitalism, gives way to a new form of antagonism, that between the dead knowledge of capital and the ‘living knowledge’ of labour” (Vercellone 2007, 33).<sup>8</sup> The new “cognitariat” then refused to accept a situation in which living labor was treated as a mere appendage. This “No!” constituted the crisis of Fordism:

(I)t is the refusal of the scientific organisation of labour that largely explains the falling rate of profit and the social exhaustion of the Taylorist gains in productivity through which the Fordist crisis has been manifested since the end of the 1960s (Vercellone 2007, 27).<sup>9</sup>

Since the “tendential fall of the capital's control of the division of labour” continues in contemporary post-Fordism/cognitive capitalism, capital tends to be permanently in crisis. Capital, of course, attempts to put this tendency out of play. Even if the real subsumption at the point of production breaks down, the formal subsumption of labor of living labor under capital still remains, “based essentially on the relation of monetary dependence of the wage-labourer inside the process of circulation” (Vercellone 2007, 31).<sup>10</sup> The employment insecurity of post-Fordism/cognitive capitalism heightens this dependence, as “capital’s attempt to maintain the permanence of the law of value founded on direct labour-time, despite its crisis, leads to the unemployment and the devalorisation of labour-power” (Vercellone 2007, 31; Virno similarly discusses how the free time created by the advance of scientific-technological knowledge and mass intellectuality takes “the form of forced redundancy” Virno 2007, 5). The formal subordination to capital can also be maintained through artificial scarcity, created by the

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<sup>8</sup> “Mass education and the development of a diffuse intellectuality make the educational system a central site for the crisis of the Fordist wage relation (Vercellone 2007, 27).”

<sup>9</sup> Virno brings out the connection between this new theory of crisis and the historical irrelevance of value theory: “(T)he crisis of capitalism is no longer due to the disproportions intrinsic to a mode of production based on the labour-time of individuals (that is, to the imbalances related to the full operation of the labour of value, for instance of the fall of the rate of profit.) Instead, what comes to the fore is the lacerating contradiction between a productive process that now directly and exclusively relies on science and a unit of measure of wealth that still coincides with the quantity of labour embodied in products” (Virno 4).

<sup>10</sup> Vercellone connects the rise of “financialization” in contemporary capitalism to this process, and it is certainly true that unprecedented levels of consumer debt and household debt are effective ways of controlling and disciplining labor. From this perspective, “Financial globalization could also be interpreted as capital's attempt to render its cycle of valorization ever more autonomous from a social labour process which it no longer subsumes in real terms” (Vercellone 2007, 23).

extension of intellectual property rights, as Vercellone rightly emphasizes. Capital's reign has also been maintained despite the permanent crisis through what Virno terms "the universal restoration of personal dependency":

Since it is accomplished under a capitalist regime, the end of the division of labour translates into a proliferation of arbitrary hierarchies that is into forms of compulsion no longer mediated by tasks and roles. Putting the intellect and language – that is, what is common – to work, renders the impersonal technical division of labour spurious, but also induces a viscous personalization of subjection ... the universal restoration of personal dependency (Virno 2007, 8).

Vercellone, echoing Foucault, speaks of a new "society of control" of worker subjectivity:

(T)he crisis of real subsumption at the level of the labour process drove capital to attempt to subject and prescribe the worker's subjectivity itself according to the logic of a society of control (Vercellone 2007, 31).

No logical proof can show that capital's attempts to keep crisis latent are inevitably doomed to fail.<sup>11</sup> But the more they succeed in the short-term, the more blatant capital's repression of the historical possibilities opened up by the general intellect becomes:

The result of this is the current paradox of poverty within abundance in an economy in which the power and diffusion of knowledges contrasts with a logic of accumulation ... the new relations of ownership obstruct the progress of knowledge through the creation of an artificial scarcity of resources (Vercellone 2007, 34).

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<sup>11</sup> In Virno's case, at least, the question of whether crises will erupt in the future cannot be answered with confidence. The central role of equivalent exchange in modernity provided an institutionalization of the principle of "unconstrained mutual recognition" even if in an ideological and contradictory fashion. The limits of this institutionalization then provided both a motivation to engage in social critique and a vocabulary for this critique. In era of the general intellect, in contrast, the notion of equivalent exchange loses its meaning, according to Virno: "the general intellect occludes the possibility of a synthesis, fails to provide the unit of measure for equivalence and frustrates all unitary representations" (Virno 2007, 7) As a direct result, he asserts (without, one must say, any argument, at least not in the essay under discussion), the ideal of egalitarian communication gives way to a generalized cynicism: "the cynic entrusts his self-affirmation to the unbound multiplicities of hierarchies and inequalities that seems to be entailed by the increasing centrality of knowledge in production" (Virno 2007, 7) As long as such cynicism is generalized, the contradictions of post-Fordism/cognitive capitalism will not generate overt social crises.

From capital's standpoint, however, the most significant problem may not be its increasing irrationality, but the fact that the more it represses historical possibilities, the more it chokes the source of its own dynamism:

(T)he logic of capital accumulation ... assumes an ever more parasitic nature through its attempt to enforce the law of value artificially. It does so to the point of blocking the sources themselves of the process of the diffusion and the accumulation of knowledge (Vercellone 2007, 34-5).

At some point, surely, the betrayal of the emancipatory promises of post-Fordism/cognitive capitalism will lead living labor to

the necessity of recognizing, against the logic of capital, the increasingly collective nature of technical progress in order to place it at the service of the increase of effective liberty of individuals and the "diversity of existence," and to affirm the primacy of use-value over exchange-value (Vercellone 2007, 31).

At the heart of the "No!" to capital, then, there is an affirmation:

We could define communism as the real movement by means of which the society of knowledge would liberate itself effectively from the capitalist logic that subsumes it, freeing the potential of emancipation inscribed in an economy founded on the free circulation of knowledge and the democracy of the general intellect (Vercellone 2007, 35).<sup>12</sup>

Virno too asserts that "the general intellect can affirm itself as an autonomous public sphere only if its bond to the production of commodities and wage-labour is rescinded," since "the subversion of capitalist relations of production can only manifest itself today through the institution of a public sphere outside the state and of a political community that hinges on the general intellect" (Virno 2007, 8).

This completes the survey of issues raised by Virno and Vercellone in the course of their reflections on the "Fragment on Machinery" in the *Grundrisse*. There can be no

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<sup>12</sup>Policies calling for a guaranteed basic income are an important step in this direction. Initially they can be "conceived as the remuneration for the totality of social times and for the activities that participate in the creation of value appropriated by enterprises," since now "the exploitation of the use-value of labour expands to the entire social day" (Vercellone 2007, 34). But such policies also further the precondition for a transition to a new stage in world history insofar as a guaranteed basic income "favours the development of activities alternative to the logic of the market and wage-labour" (Vercellone 2007, 34).

question of definitively resolving any of these issues here. The remainder of this paper is merely an initial and provisional contribution to an on-going discussion.

### **THE CATEGORY “GENERAL INTELLECT”**

The main categories employed in the *Grundrisse* (and Marx’s other manuscripts devoted to the critique of political economy) are historical categories, referring explicitly to a historically specific mode of production.<sup>13</sup> His critique is not a transcendental deduction of what must always and everywhere be the case. It is a critique focused on the specific epoch of world history in which capital reigns, presented in the form of a *systematic* presentation of its essential determinations.<sup>14</sup> In the methodological framework of Marx’s theory, however, it is important to distinguish historical categories in this broad sense from ones that are historical in the narrower sense of defining specific periods in capitalism’s history.

In the “Fragment on Machines” the text is complicated by the fact that the term “general intellect” both distinguishes a particular period in capitalism’s historical development *and* refers to an essential determination of capital implicit in Marx’s systematic ordering from its beginning. Virno and Vercellone appear to note only the former. Since this oversight seems to affect other elements of their position, it worth developing the point.

At the beginning of the *Grundrisse*, as well as his other systematic works, he takes generalized commodity exchange, the endless exchange of commodities for money, and money for commodities, as given. He argues that in modern society commodities and money are not simply things human agents use as a convenient means to fulfill their wants and needs. They are not so much *instruments* of social life as *embodiments* of social power. The options, subjective preferences, and external behavior of human agents are all *form-determined* by the endless circulation of commodities and money. When Marx writes, “[Each individual] carries his social power, as also his connection

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<sup>13</sup> For example, “The economic concept of value does not occur among the ancients ... The concept of value wholly belongs to the latest political economy, because that concept is the most abstract expression of capital itself and of the production based upon it” (MECW 29/159-60).

<sup>14</sup> A methodological implication is that Marx’s critique is historically revisable, unlike transcendental theories that purport to ground their own validity within themselves. New historical developments of capitalism could force us to revise or even abandon a claim that some determination is essential to capital. Or determinations might come to be seen as essential only after historical developments reveals them to have been latent beforehand.

with society, in his pocket” the statement is to be taken literally (MECW 28/94). Money does not lose its power of universal exchangeability—in effect, the power to appropriate the results of others’ labor—as it moves from the pocket of one individual to another. There is a sense in which it has this power in itself.

It is equally true, however, that mere things do *not* have social powers in themselves. The powers in question are the collective powers of society. But they cannot appear as what they essentially are, due to the historically specific manner in which social relations and material social practices are organized in generalized commodity exchange. In this form of social organization, which may be termed *dissociated sociality*, “the absolute mutual dependence of individuals, who are indifferent to one another, constitutes their social connection” (MECW 28/94). More specifically, generalized commodity exchange presupposes (and is presupposed by) a social division of labor in which labor is undertaken privately by separate units of production (“private exchange presupposes private production” MECW 28/36), and must subsequently validate its social necessity through exchange of the produced commodity.<sup>15</sup> With successful exchange a new dimension of social ontology emerges, the value dimension.<sup>16</sup> Products now have a special ontological property, “having been produced by privately undertaken labor that has proven to be socially necessary” (or, equivalently, “universal exchangeability in definite proportions”). This *value* is an abstract and homogeneous property of commodities, distinct from the concrete and heterogeneous properties studied by physics, chemistry, etc. It requires an external abstract and homogeneous thing, *money*, to serve as its socially objective measure. It is a historically specific social division of labor, then, that “creates the apparently transcendental power of money”:

The need for exchange and the transformation of the product into pure exchange value progresses in the same measure as the division of labour, i.e. with the social character of production. But with the growth of the latter grows the power of *money*, i.e. the exchange relation establishes itself as a power external to and

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<sup>15</sup> “On the basis of exchange value, labour is *posited* as general labour only through *exchange*” (MECW 28/108). As this and other quoted passages reveal, at the time the *Grundrisse* was written Marx did not consistently distinguish the (“external”) relations of a commodity with money and other commodities from its “internal” property of having been produced by socially validated labor (i.e., its “exchangeability”).

<sup>16</sup> As the quoted passages reveal, at the time the *Grundrisse* was written Marx did not consistently distinguish the (“external”) relations of a commodity with money and other commodities from its “internal” property of having been produced by socially validated labor (i.e., its “exchangeability”).

independent of the producers. . . . In proportion as the producers become dependent upon exchange, exchange appears to become independent of them; the rift between the product as product and the product as exchange value appears to widen. Money does not create this opposition and this contradiction; on the contrary, their development creates the apparently transcendental power of money (MECW 28/84).<sup>17</sup>

Marx's value theory is a tremendous affront to alleged rationality of (capitalist) modernity. Early tribes thought that external things—fetish objects—had innate social powers. The organizational forms and belief systems of those societies reproduced a social world in which this appeared to be the case, and this appearance was not a subjective illusion. It had objective material force. Nonetheless, we “moderns” laugh at the mistake of “primitive” societies, whose members did not realize that the supposed powers of fetish objects were nothing but the collective powers of the society in an alien form. But modern capitalist society is based on its own form of *fetishism*. The organizational forms and belief systems of capitalist societies reproduce a social world in which the appearance that commodities and money possess social powers is not a merely subjective illusion. It is an appearance with objective material force.<sup>18</sup> But in the deepest ontological sense these powers are nothing but the collective powers of the society in the alien form of fetish objects: “Their own collisions give rise to an *alien* social power standing above them. Their own interaction [appears] as a process and force independent of them” (MECW 28/132). Neither things nor pieces of gold or bits of paper have the power to creatively define human wants, or to develop and possess the capacities to meet them. But because of “dissociated sociality” these social powers cannot appear as what they are. The only socially objective representation of them is found in things, giving

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<sup>17</sup> In the context of dissociated sociality—and only in this context—the labor that produces products also obtains a special ontological property. The abstract and homogeneous determination “privately undertaken labor that has proven to be socially necessary” supervenes on the concrete and heterogeneous properties of different acts of laboring. This justifies referring to labor with this property *abstract labor*. This term is also appropriate because this dimension of laboring is causally responsible for the production of value, the abstract property of commodities measured in the abstract units of an abstract thing, money.

<sup>18</sup> “In bourgeois society, e.g., the worker stands there purely subjectively, without object; but the thing which *confronts* him has now become the *true community*, which he tries to make a meal of and which makes a meal of him” (MECW 28/420).

them the power to shape (“form-determination”) the very sociality that they represent (“fetishism”).<sup>19</sup>

Form-determination and fetishism are the two great themes of Marx’s critique of political economy. Taken together these two notions express how the social ontology of generalized commodity production is stupendously more complex, bizarre, and perverse than mainstream social theorists comprehend. The endless circulation of things, on the one hand, and social relations and material social practices, on the other, in effect represent mutually incompatible, and yet simultaneously correct (and incorrect), claims to be the “essence” of generalized commodity production. Comprehending each requires acknowledging the sense in which the other is reduced to a “pseudo-essence.” These two poles of the modern social world are thus fundamentally antagonistic.<sup>20</sup> As we shall see, this antagonism is *not* reconciled and overcome as Marx’s systematic dialectic progresses. The *same* fundamental contradiction remains, comprehended in a progressively more concrete and complex fashion.<sup>21</sup>

On the next major level of Marx’s systematic theory, the same totality with which we began, generalized commodity exchange/production, is conceptualized in a more concrete and complex fashion. It is now made explicit that M-C-M’ circuits dominate the circulation of commodities and money, with C-M-C circuits having a subordinate place.<sup>22</sup>

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<sup>19</sup>“The *objective* relations of dependence ... also appear in such a way that the individuals are now ruled by *abstractions* whereas previously they were dependent on one another. (The objective relationship of dependence is nothing but the social relations independently confronting the seemingly independent individuals, i.e. their own reciprocal relations of production which have acquired an existence independent of and separate from them)” (MECW 28/101).

<sup>20</sup> This ontological structure is not homologous with Hegel’s notion of a concrete universal, which in the social realm can be defined as “an ‘I’ that is ‘we’ and a ‘we’ that is ‘I.’” (The institutional order Hegel himself defends in *The Philosophy of Right* fails to be homologous with his own principles precisely because Hegel failed to adequately recognize the form-determination and fetishism of value, money, and, ultimately, capital. See Smith 1990).

<sup>21</sup> In this profound respect Marx’s systematic dialectic is fundamentally different from, rather than homologous with, Hegel’s. It is the difference between a *critical* dialectical theory and *affirmative* dialectical theory, in which fundamental antagonisms are reconciled (Smith 1990).

<sup>22</sup> Why do M-C-M’ circuits dominate? Ultimately, the answer must be because units of production face ceaseless competitive pressure to socially validate their privately undertaken labor. Units of production that do not relentlessly and successfully direct their endeavours to obtaining money ( M’ ) exceeding the initial money invested ( M ) will necessarily tend to be pushed to the margins of social life, or eradicated altogether. Marxists should not recoil in horror when the term “competition” is introduced on the level of capital in general. *None* of Marx’s central categories can be even provisionally adequately defined without presupposing the social form of dissociated sociality, that is, without presupposing the competitive pressure of privately undertaken labor to validate its social necessity. At the beginning of the *Grundrisse* manuscripts, for example, Marx viciously mocks proposals to reform money while retaining privately

With this a new level of social ontology can be explicitly considered, the level of *capital*. “Capital” can be understood as the dynamic principle of unity-in-difference of individual M-C-M’ circuits, taking on and discarding the forms of money and commodity in a process of “self-valorization.” In other contexts the term “capital” refers to the totalizing drive to valorization that is the dominant principle of social organization on the level of society as a whole.<sup>23</sup>

Marx now extends his account of form-determination to include the capital form. There is a sense in which “capital” is ontologically prior to—and shapes—the intentions and activities of individual agents (including those of capitalists), however much human agency is responsible for its emergence and maintenance. At the beginning of the theory the labor privately undertaken in units of production was form-determined by the external imperative to produce value. Marx now makes explicit that these units of production are units of capital, form-determined by the external imperative to produce surplus value; abstract value-producing labor is *surplus value-producing* labor.<sup>24</sup> The labor process is not simply a set of activities in which living labor actualizes its own capacities by transforming inputs into products with the aid of objectifications of past labor. It is a *valorization process* form-determined by capital. Capital is an “essence” or “subject” taking on a variety of particular forms in turn: investment capital (M); commodity capital (purchased means of production and labor capacities), capital-in-production (P); the new

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undertaken (and hence subject to ceaseless competitive pressure) production (MECW 28/90-3). Marx does write that “Competition in general, this essential locomotive force of the bourgeois economy, does not establish its laws but is their executor” (MECW 28/475). But this formulation is misleading to the extent it suggests that the “inner nature” of capital can be considered apart from competition: “Conceptually, *competition* is nothing but the *inner nature of capital*, its essential character, manifested and realised as the reciprocal action of many capitals upon each other; immanent tendency realised as external necessity” (MECW 28/341). It is the relentless externally imposed competitive pressure of the valorization imperative that distinguishes capitalist *market societies* from pre-capitalist *societies with markets* (Wood 2002). (Of course on the early levels of abstraction in Marx’s systematic theory concrete features of “many capitals” and “competition” are not taken into account, such as specific differences among units of capital regarding organic compositions, turnover times, etc. And so there is an important sense in which the distinction between the levels of “capital in general” and “competition” must be retained.)

<sup>23</sup> At this point we can begin to fathom the depth of Marx’s critique of political economy. Mainstream social theorists do not deny that systems of generalized commodity production include agents who invest money to obtain monetary returns. They all presuppose, however, that money (in principle, at least) is merely a proximate goal, subordinate to the ultimate end of providing the material preconditions for human flourishing (assuming the proper background conditions are in place). For Marx, in contrast, the alien (non-human) end of capital valorization holds on the level of society as a whole. Human flourishing is systematically subordinated to the flourishing of capital.

<sup>24</sup> And it is previous-value-transmitting labor as well; the value of constant capital is transmitted (in whole or in part) to the final product only through living labor (MECW 28/289-90).

commodity capital that is produced (C'), and the money capital (M') resulting from its sale. Capital, like commodities and money, is no mere instrument of social power used by humans for human ends. It *is* social power, subjecting humans to *its* end.

The theory of form-determination, however, is only one dimension of Marx's critique of political economy, which also includes the set of ontological claims underlying the theory of fetishism. Capital too appears to possess social powers in an analogous sense to the fetish objects of earlier societies. This is no subjective illusion. The organizational forms and belief systems of capitalist societies reproduce a social order in which this appearance has objective material force:

All social powers of production are productive forces of capital and consequently capital itself appears as their subject (MECW 28/505).

But Marx's theory of exploitation shows that in the deepest ontological sense the powers of capital are simply (simply?) nothing but the collective powers of living labor in the form of an alien real abstraction. In specific, capital's power of self-valorization is nothing but the appropriation of the creative powers of collective social labor: "Living labour as appropriated and absorbed by capital appears as capital's own life-power, its self-reproducing power ... Only thus is capital posited as self-perpetuating and self-multiplying value" (MECW 29/201). Again:

(I)n exchange for his labour capacity as a given magnitude, he [the worker] surrenders its *creative power* ... the creative power of his labour establishes itself as the power of capital, and confronts him as an *alien power* ... the productivity of his labour, his labour altogether, in so far as it is not a *capacity* but movement, *real labour*, *becomes* an *alien power* relative to the worker. Capital, on the contrary, valorizes itself through the *appropriation of alien labour* (MECW 28/233).<sup>25</sup>

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<sup>25</sup> As these texts suggest, the living labor in question is not the transhistorical subject of traditional humanism. A transhistorical notion of living labor is a mere thought abstraction, and it would be a profound category mistake to assign creative powers to *this* sort of abstraction. The living labor discussed here is living labor subject to historically-specific social forms. More specifically, it is living labor in the historically specific form of the use-value of variable capital. The powers it develops are developed *within* this social form and *because of* this social form (see MECW 28/234-5). This all-important instance of form-determination, however, does not undermine the ontological claim at the heart of the theory of capital fetishism.

This living labor at the heart of Marx's theory of exploitation is ultimately not "other" than capital, not "external" to it. It is what the theory of capital fetishism reveals the substance of capital to be. Capital is nothing but "the potentialities resting in living labour's own womb which come to exist as realities outside it as a result of the production process—but as *realities alien* to it, which constitute wealth in opposition to it" (MECW 28/383). And so (jumping to a later stage of the systematic ordering, when the accumulation of capital over time is examined):

All the moments which confronted living labour capacity as *alien, external* powers, consuming and using it under *certain conditions independent of it*, are now posited as *its own product and result* ... They therefore appear now, are now posited, as the product, the result, the objective form, the external existence, of surplus labor itself. (MECW 28/380-1).

From the standpoint of form-determination capital is a "subject," a higher-order ontological "entity" subsuming every nook and cranny of social life under the valorization imperative. From this standpoint, living labor is not a subject, but merely the use of a particular type of commodity capital. In itself, it is nothing (MECW 28/222-4). But in the ontology underlying the theory of fetishism, it is *capital* that is literally *nothing* in itself. Capital is simply ("simply"?) a fetishized form taken by the powers of collective social labor, due to the manner in which social relations and material social practices are organized in generalized commodity production. From this standpoint capital is a *pseudo*-subject, however much the perverse social forms of dissociated sociality give its claim to possess social powers a palpable material force. If social relations and material social practices were structurally transformed, the supposedly absolute powers of capital would be instantly revealed as an ontological lie, just as the supposedly inherent powers of the fetish object quickly proved to be an ontological lie when the social relations of tribal communities were radically transformed.<sup>26</sup> The practical point of Marx's theoretical critique of political economy is to recognize the lie now, in order to bring the day of reckoning closer.

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<sup>26</sup> And—if another example is needed—just as the supposedly transcendental powers of absolute monarchs proved to be an ontological lie as soon as the social relations underlying this state form were left behind in world history

Once again, Marx's systematic dialectic of capital does not move to a reconciliation of the antagonism of alien forms and sociality (of essence and counter essence; of subject and pseudo-subject). This antagonism *defines* capital, and so it cannot be overcome as long as the social forms of capital remain in place. Marx instead moves to a yet more complex and concrete account of it in his discussion of absolute surplus value and relative surplus value.

If valorization is the organizing principle of the capitalist social order, and if valorization depends upon wage laborers' surplus labor (that is, labor beyond that required to produce an amount of value equivalent to what they receive back in wages), then a structural tendency for the work day to be lengthened in order to produce and appropriate *absolute surplus value* follows at once, as does the tendency to produce and appropriate *relative surplus value*.<sup>27</sup> Marx emphasizes throughout his discussion of these tendencies that there is a valid sense in which we can speak of capital's powers developing due to these tendencies. And he continually reminds us of the equally (equally?) correct sense in which the creative powers of collective social labor are furthered, even if these powers cannot appear as what they essentially are due to the perverse manner in which social relations and material social practices are organized in

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<sup>27</sup> The claim that the drive to produce and appropriate *absolute surplus value* is an intrinsic feature of capital in general is relatively easy to establish. Any given unit of capital has an incentive to attempt to increase surplus labor by extending the length of the work day. Matters are more complex with relative surplus value. It is not the case that every unit of capital has an interest in introducing advances in productivity lowering the prices of wage goods. Most obviously, many units of capital do not produce wage goods. And even those that do would directly benefit from this only to the extent that the goods they produce are part of the overall wage bundle (MECW 28/519). In almost all cases that proportion will be relatively insignificant. Also, a reduction in wage costs would not provide them with any special advantages, since all their competitors would equally benefit. And so the explanation of one of the most significant dimensions of the capital/wage labor relation must refer to inter-capital relations. Productivity gains necessarily tend to be sought by all units of capital in the hope that the *individual value* of the produced commodities will be below their *selling price*, with this in turn less than the *social value* expressed in the average market price of the given commodity. Such gains enable the innovating firm to simultaneously conquer market share from its competitors while attaining above average profits. In effect, more productive (higher-order) labor is then paid as if it were labor of average productivity, raising the rate of surplus value for the given unit of production. Eventually, above average profits are lost, as other capitals duplicate the innovations responsible for the productivity gains. But the imperative to seek productivity-enhancing innovations is general, holding in sectors producing wage goods as much as anywhere else, justifying the claim that there is a tendency for the prices of wage goods to decline. Everything else being equal, a decline in the prices of wage goods enables the surplus labor/necessary labor ratio to increase, raising the rate of surplus value on the level of total social capital. Marx apparently himself came to fully appreciate the need for this argument after completing the *Grundrisse*, in the course of writing the 1861-63 Manuscripts (see MECW 30/319-20, 323-4; contrast with MECW 29/160; see also note #22 below).

generalized commodity exchange/production. Each point must be given the maximum weight possible without denying the proper weight due the other.

As we have seen, the category “general intellect” is introduced in course of discussing relative surplus value. And so we can now finally return to the question of the sort of category it is. Without question Marx uses this notion to distinguish a particular period in capitalism’s historical development, specifically, the nineteenth century industrial revolution (“big industry”) with its incorporation of scientific-technical knowledge. The “general intellect” is thus a historically specific category in the narrow sense. This is not the entire story, however.

From the very start of his systematic theory Marx notes that the social form of dissociated sociality externally imposes a compulsion to seek productivity advances on units of production, and that collective creative powers are developed in response. As the theory progresses we do not move from one totality to another. We move from relatively abstract and simple categorizations of generalized commodity production as a totality, to progressively more concrete and complex categorizations of this *same* totality. The drive to produce and appropriate relative surplus value is the *same* external compulsion to advance productivity considered at the very beginning of Marx’s theory, now comprehended in a more concrete and complex fashion. The same collective creative powers of (tacit and explicit) theoretico-practical knowledge underlies Marx’s systematic theory from its start to its conclusion. *The general intellect has been implicit from the very beginning of the systematic critique of political economy.* It is a historical category in the broad sense of the term, an essential determination of capital, and not merely a feature of particular epochs in capitalist history. The general intellect is a more concrete and complex way of categorizing the “sociality” that forms a counter-essence, a counter-subject, to value, money, and capital:

Universally developed individuals ... are not products of nature but of history. The degree and the universality of development of the capacities in which *this kind* of individuality becomes possible, presupposes precisely production on the basis of exchange value, which, along with the universality of the estrangement of individuals from themselves and from others, now also produces the universality and generality of all their relations and abilities (MECW 28/99).

The general intellect as Virno's defines it ("the faculty of language, the disposition to learn, memory, the capacity to abstract and relate, and the inclinations towards self-reflexivity" Virno 2007, 6) has been the secret of the capital form for as long as that form has been in place. We do not need the contemporary example of "radically innovative factories such as Fiat in Melfi" to know that "formal and informal knowledge, imagination, ethical inclinations, mentalities and 'language games'" are an essential part of the social ontology of capitalism. *Any and all* variants of capitalism rest on a "depository of cognitive competencies that cannot be objectified," that is, on the general intellect with "operational materiality" insofar as it "organises the production process and the 'life-world.'" The fact that "the sharing of the general intellect becomes the effective foundation of every kind of praxis" is by no means a recent development. The creative powers of collective social labor provide the basis of Marx's theory of capital fetishism, and this theory holds whenever and wherever the capital form reigns, however much the general intellect undoubtedly takes different shapes in the putting out system, early factories, the factories of 19<sup>th</sup> century England, Fordism, or post-Fordism/cognitive capitalism.<sup>28</sup>

I believe that failure to recognize the sense in which the general intellect is a systematic category may have led Virno and Vercellone to understate the degree to which the general intellect operates in Fordism, and to overestimate the extent to which it flourishes in contemporary capitalism.

## **THE "GENERAL INTELLECT" AND THE HISTORICAL DEVELOPMENT OF CAPITALISM FROM THE INDUSTRIAL AGE TO THE CONTEMPORARY PERIOD**

### *The General Intellect from the Industrial Revolution Through Fordism*

Virno and Vercellone describe the industrial revolution of Marx's day as a period in which the general intellect first rose to prominence in the form of scientific-technical knowledge embodied in fixed capital. Living labor, a mere "appendage" of machines,

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<sup>28</sup> The term "general intellect" may not be used in the chapters on machinery in the *1861-63 Manuscripts* or the chapter "Machinery" in the first volume of *Capital*. But in these texts Marx stressed the intrinsic connection between relative surplus value and the systematic tendency for the knowledge to play an increasingly important role in the production process. This is the concept of the general intellect, even if the term itself is not employed. Just as the term "capital in general"—also not employed after the *Grundrisse*—remains central to the logical framework of *Capital* (see Moseley 1995), the notion of the general intellect was not abandoned in Marx's later writings.

was supposedly thoroughly alienated from this emerging general intellect. The sharp distinction between conception and execution is then asserted to have become even more extreme in Taylorism and Fordism.

There is a textual support in the *Grundrisse* in support of this evaluation. In *Capital*, however, Marx examines into the details of the emergence of technologies of industrial production, a task he foregoes in the *Grundrisse*. The results suggest that Virno and Vercellone's account may need to be modified.

Simplifying somewhat, we can summarize Marx's description in *Capital* of the development of machinery in the industrial revolution as follows. First, there was an extended process from the introduction of a machine, through the discovery of the strengths and weaknesses of its initial design, to a redesign attaining its "perfected form." Marx notes that the final result did not depend solely on the work of scientists, engineers, and inventors. It emerged from a creative interplay between such people and workers with tacit and explicit knowledge of the production process:

The problem of how to execute each particular process, and to bind the different partial processes together into a whole, is solved by the aid of machines, chemistry, etc. But of course, in this case too, the theoretical conception must be perfected by accumulated experience on a large-scale (Marx 1976, 502). It is only after a considerable development of the science of mechanics, *and an accumulation of practical experience*, that the form of machine becomes settled entirely in accordance with mechanical principles, and emancipated from the traditional form of the tool from which it has emerged (Marx 1976, 505; emphasis added).

Subsequently, the productive apparatus was then used in the workplace. At this point *Capital* echoes the passages from the *Grundrisse* powerfully describing workers' loss of autonomy and alienation from the knowledge objectified in massive systems of machinery.

The valorization imperative ensures that no particular system of machinery, no matter how "perfected," will persist indefinitely. As long as there is capitalism, there will

be technological revolutions.<sup>29</sup> Is it consistent with Marx's theoretical and practical framework to assert that the subsequent technological changes will be due entirely to the work of scientists, engineers, and inventors? Or is it far more consistent with that framework to insist that they too will tend to result from the creative interplay between scientific-technical laborers in the narrow sense and workers with significant informal and tacit knowledge of the labor process? The latter view is clearly more consistent with Marx's deepest commitments. *All* systems of machinery in period extending from the industrial revolution through Fordism are objectifications of *both* formal scientific-technological knowledge and the informal and tacit knowledge of workers.

Virno, and Vercellone are correct to stress the tendency to reduce workers to mere appendages of machine systems in the period from Marx's day through Fordism. This tendency was an objective material reality experienced as such by workers taken individually. But this tendency existed alongside a tendency for the workforce as a whole to develop new capacities and new forms of tacit knowledge, despite being dominated by machine systems. These capacities and forms of knowledge played a profound role in the incremental and radical innovations that occurred throughout the period in question, however much the reality—and the ideology—of “deskilling”<sup>30</sup> prevented this from being recognized adequately.

Interestingly, Vercellone himself admits that the Fordist and Taylorist project of a workplace that did not ultimately rely on the creative powers of collective social labor was always an ideological mystification:

It is important to remember that the irreducible dimension of workers' knowledge was also apparent in the big Fordist factories in the fundamental difference between prescribed tasks and the reality of workers' labour. Without this difference, qualified by the 'paradoxical implication' of the mass worker, the

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<sup>29</sup> “(E)very degree of the development of the social productive forces, of intercourse, of knowledge, etc., appears to it [capital (ts)] as a barrier which it strives to overcome” (MECW 28/465).

<sup>30</sup> Scare quotes are required because the term is often used to describe what is really a *generalization* of previously above average skills, introduced to reduce the high levels of remuneration and control won by workers possessing a quasi-monopoly of necessary skills. There are also, of course, cases where categories of workers are literally deskilled. Even then, however, these or other categories of the workers may be simultaneously developing qualitatively new skills.

Fordist assembly line would never have been able to function (Vercellone 2007, 17).<sup>31</sup>

This is the same as admitting that living labor was *not* as alienated from the general intellect as a one-sided stress on living labor as an appendage suggests. Yes, the alien power of capital over living labor took on overwhelming material shape in the form of fixed capital in the vast machine systems of the industrial revolution and Fordism. *But the theory of capital fetishism retained its full force.* The creative powers of collective social labor continued to form a counter-subject, a counter-essence, to capital throughout the period from the industrial revolution through Fordism, however much those powers necessarily appeared as powers of capital.

In their evaluation of the period prior to the crisis of Fordism theorists of the general intellect like Virno and Vercellone appear to downplay the social ontology underlying the theory of fetishism in order to emphasize the form-determination of fixed capital. In my view, their analysis of post-Fordism/cognitive capitalism betrays signs of the inverse error, an underestimation of form-determination in order to emphasize the social ontology underlying the theory of fetishism.<sup>32</sup>

#### *The General Intellect in Post-Fordism/Cognitive Capitalism*

The subordination of both formal scientific-technical knowledge and diffuse informal tacit knowledge under capital has accompanied the reign of capital since its inception. Nonetheless, there is some justification for referring to contemporary capitalism as a system of “cognitive capitalism” based on “diffuse intellectuality.” Product life cycles are generally shorter, creating greater pressure for “continuous innovation.” There is a growing recognition that innovation is furthered by mobilizing and appropriating the experience and creative insights of a broad spectrum of the

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<sup>31</sup> Despite Vercellone’s own statement regarding what is important to remember, he himself forgets the point just two pages later, when he writes that in Fordism “Productivity can be now represented as a variable whose determinants no longer take into any consideration the knowledge of the workers” (Vercellone 2007, 19).

<sup>32</sup> In Virno’s case, this may be connected with his decision to call the general intellect a “real abstraction.” He is, of course, free to use terms however he likes, and the generality of human cognitive dispositions and accomplishments is not in question. But his use of the term makes it impossible for it to fulfill its main purpose in Marxian theory, the comprehension of the bizarre and perverse role of value, money, and capital in the social ontology of generalized commodity production. The general intellect is a set of embodied capacities and practices of human subjects, and not a “real abstraction” in the sense in which that term has been used in the Marxian tradition.

workforce (including knowledge developed outside the workplace). The labor process today mobilizes and appropriates knowledge developed in the course of interactions across the now porous boundaries between one unit of capital and another (e.g. “concurrent engineering”), between units of capital and representatives of private life (such as consumer focus groups), and between units of capital and the public sector (e.g. cooperation between scientists in industry and in public universities). The radical employment mobility of contemporary capitalism has broken the last residue of traditional knowledges passed on from generation to generation, creating a fluid subjectivity capable of adopting and discarding knowledge practices more or less continuously. Peer-to-peer networks continually generate new forms of an electronic commons, always one step ahead of complete appropriation by capital (so far, at least). And so on.

Do these features of contemporary capitalism justify Virno’s assertion that something like the sort of flourishing of living labor and the general intellect that Marx anticipated in communism has been “actually fully realized” in post-Fordism (Virno 2007, 4)? That claim appears impossible to justify. Marx anticipated a future epoch in world history when the development of the creative powers of collective social labor would be affirmed as an end in itself, and not subordinated to the alien end of capital accumulation. In other words, he anticipated a future society in which “form-determination” by the commodity form, the money form, and the capital form would be overcome. To say this has not occurred in contemporary capitalism would be a ludicrous understatement. While scientific-technological knowledge and mass intellectuality have attained unprecedented importance, they remain form-determined in numerous respects, all of which undermine the diffusion of “diffuse intellectuality” as an end in itself:<sup>33</sup>

- While certain forms of scientific-technical knowledge are systematically furthered in contemporary capitalism, others are systematically restricted. A partial list includes knowledge directed to meeting human wants and needs outside the commodity form, knowledge concerning the long-term environmental consequences of the production of various categories of commodities, knowledge of the long-term physical, psychological, and social

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<sup>33</sup> For a more detailed discussion of many of these themes, see Smith 2000, Chapters 3, 5.

effects of the consumption of those commodities, knowledge of the long-term physical and psychological effects of participation in alienated labor processes, knowledge that conflicts with the dominant ideological paradigms, and so on.

- In the so-called “knowledge economy” there is a dominant tendency for knowledge itself to become a commodity through the extension and enforcement of intellectual property rights. The negative consequences go beyond the failure to distribute knowledge products as free public goods.<sup>34</sup> The greater the scope of intellectual property rights, the more the generation of new scientific-technological knowledge is systematically restricted. Potential innovators may decline to enter fields where other units of capital own extensive IPR’s, or where they judge they would have to engage in long and costly “end runs” around them. Also, smaller firms that do not have the resources to engage in lengthy legal battles will tend to withdraw from pursuing promising forms of innovation (*The Economist* 2002).
- Diffuse knowledge is not all that diffused. The U.S., for example, accounts for 40% of total world spending on research and development and has by far the highest growth rate in patents (6.6% a year in the period between 1993 and 2003, as opposed to 5.1% in the E.U. and 4.1% in Japan; Galama and Hosek 2008). Access to the frontier of scientific-technological knowledge is systematically limited, given its crucial role in the “informal empire” the U.S. is so desperately attempting to maintain.
- As both Virno and Vercellone note, post-Fordism/cognitive capitalism does not provide employment guarantees. Since the innovations that increase productivity might lead to employment becoming even more precarious, the incentive for workers to share insights that might lead to such innovations is significantly blunted.
- Post-Fordism/cognitive capitalism necessarily tends to result in a vastly disproportionate share of the rewards from innovations being appropriated by

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<sup>34</sup> As Vercellone points out, mainstream economics decrees that free distribution is rational when the marginal costs of production approach zero (Vercellone 2007, 34).

investors and the top managerial stratum. (The increased precariousness of employment and the extension of the intellectual property rights system both tend in this direction). This too blunts workers' incentive to share insights that might contribute to innovation.

- With the move from vertical integration (Fordism) to networks (post-Fordism), parts of the production and distribution chain that had previously been undertaken within firms, outside the price mechanism, now become inter-firm transactions or transactions between quasi-autonomous branches of the same firm. As such they are more directly and intensely subjected to the valorization imperative.<sup>35</sup> The external force of the valorization imperative ensures that firms within networks will necessarily tend to attempt to displace risks on to their suppliers and distributors, while appropriating the most lucrative portions of the “value chain” for themselves. This systematically discourages the free flow of information and communication within networks.
- The network model is also associated with “divide and conquer” strategies, in which the representatives of capital play off one sector of the work force against another. This too systematically discourages collaboration in the innovation process within networks.
- The benefits to capital in the industrial/Fordist period from “deskilling” privileged sectors of the work force remain in post-Fordism/cognitive capitalism (Head 2003). Restricted groups of workers may be allowed the time and resources for creative knowledge work. But new and extreme forms of standardization are simultaneously being imposed on others throughout the global economy (Huws 2007, 2008). Much of what is called “multiskilling,” for example, is merely the stress-filled process of attempting to complete a variety of standardized procedures in an ever-more compressed period of time. Post-Fordism/cognitive capitalism, like Fordism before it, systematically denies large categories of workers the time, training, and material support for effectively participating in innovation.

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<sup>35</sup> It is true that intra-firm exchange makes use of managed prices set strategically (for instance, to minimize tax bills) rather than “market prices.” This important complication, however, does not refute the point.

- Virno discusses how free time outside the labor process in post-Fordism has become “a part of the use-value of labour-power and computed as profitable resource.” But moving the discussion beyond the confines of the labor process in the narrow sense does not make the claim that Marx’s anticipation of communism has been “actually fully realized” in post-Fordism any more plausible. The systematic production of ignorance by the capitalist mass media so powerfully described in Debord’s writings on “the society of the spectacle” should suffice to make this point.
- The (limited) abandonment of the (fantasy) goal of strictly separating conception and execution in post-Fordism/cognitive capitalism hardly implies that “*all* forms of concerted action based on the technical division of labour thereby shrink in significance” (Virno 2007, 8). The gulf between technical tasks assigned to workers on the shop floor and office, and those undertaken by Chief Executives Officers and Chief Financial Officers, has *widened*, if anything. Global value chains institutionalize a geographically-based technical division of labor, with creative knowledge work kept in the “core” of the network as standardized operations are outsourced. And before agreeing that the technical division of labor is no longer relevant to contemporary capitalism we also ought to recall that the greatest private sector investment in information technologies, the greatest concentration of capital investment in knowledge workers, and the highest rate of innovation in the global economy, has been in the financial sector. The result has been an unprecedented proliferation of hypercomplex financial products designed by specialists with unique technical skills, such as the “quants” with physics Ph.D.s from MIT. This alone makes the claim that the technical division of labor has been overcome in the contemporary economy close to unintelligible.

*Pace* Virno, the “the real abstractions of modernity”—value, money, capital—continue to hold with undiminished force in contemporary capitalism, despite the institutionalization of the general intellect in post-Fordism. It follows that any claim that post-Fordism “actually fully realizes” the general intellect in anything like the manner Marx anticipated in communism must be rejected.

*Pace* Vercellone, “the real abstractions of modernity” do not now hold only *outside* the labor process. Cognitive capitalism is not a return to formal subsumption after the conclusion of an era of real subsumption. The real subsumption of living labor under capital is not limited to the deskilling of craft labor. *The real subsumption of the labor process occurs whenever the substantive content of the labor process is fundamentally shaped by the valorization imperative.* And this is the case throughout the global economy today. Clearly this is most obvious in work sites like the call centers of the Global South, where questions are answered with prewritten scripts while being monitored and timed. But real subsumption occurs as well in the most exalted forms of “knowledge work” (Huws 2003, 169). “Management by results” and performance-related pay can lead even the most apparently “autonomous” knowledge workers to internalize of the valorization imperative in a way that affects the substantive content of the labor process, its direction and pace, as profoundly as any machine externally imposed the direction and pace of industrial labor.

The overestimation by Virno and Vercellone of the extent to which post-Fordism/cognitive capitalism counts as a rupture from earlier stages of capitalism’s historical development is closely connected with their claim that Marx’s theory of value has been rendered obsolete by historical development, the topic of the following section.

### **THE GENERAL INTELLECT AND VALUE THEORY**

Virno asserts that the historical development of the general intellect has brought about a “lacerating contradiction between a productive process that now directly and exclusively relies on science and a unit of measure of wealth that still coincides with the quantity of labour embodied in products” (**reference**). Abstract knowledge has become the main force of production, making the direct labor embodied in the product increasingly secondary. The result is “the impossibility of maintaining the direct time of labour as measure of productivity and of access to income.”

If Marx claimed that the direct labor embodied in a commodity was the proper measure of wealth, Virno would be correct to say that Marx’s theory of value has lost its explanatory power. But he would be mistaken in thinking that it was ever valid, since there has *never* been a period of capitalism in which directly embodied labor served as the proper measure of wealth (MECW 28/532; see also Camfield 2007, 46). Wealth

creation in capitalism has always depended upon “free gifts” provided by nature and the “free gifts” of pre-capitalist societies (human capacities developed in the course of history prior to capitalism). The generation of wealth in contemporary capitalism relies on powers of nature—harnessed by scientific-technical knowledge and “diffuse intellectuality”—more than ever before. But the role of other factors besides direct labor in the production of wealth has always been incalculably large. If this did not rule out the relevance of Marx’s value theory before, it does not do so now.

Let us return to the ABC’s of value theory. The project is to explain how a social order of dissociated sociality can nonetheless be reproduced over time. The explanation consists in showing how social relations are mediated by things. Initially this involves the social validation of privately undertaken labor through the sale of commodities for money. Later Marx establishes that in capitalism privately undertaken wage labor is validated as socially necessary only insofar as surplus value is produced and appropriated. The heart of value theory is this account of social validation, according to which the monetary system is *not* a mechanism for measuring contributions to wealth. It is first and foremost a mechanism for reproducing the capital/wage labor relation.

Virno is correct when he asserts that the expressions of the general intellect in themselves “are not units of measure; they constitute the immeasurable presupposition of heterogeneous operative possibilities.” But these expressions in post-Fordism/cognitive capitalism are still expressed within the social forms of “dissociated sociality.” Privately undertaken labor must still be validated as socially necessary through the sale of commodities for money, no matter how highly developed the general intellect manifested in that labor might be, and this privately undertaken labor is validated as socially necessary only insofar as surplus value is produced and appropriated. *This means that value theory remains as important for the comprehension of capitalism today as any previous period in its history.* As the general intellect develops, the potential development of wealth is indeed increasingly hampered by the demands of valorization. But this increasing social irrationality should be seen as a *confirmation* of Marx’s value theory, not a refutation.

#### **THE GENERAL INTELLECT AND CRISIS THEORY**

For Virno and Vercellone, the crisis of Fordism was caused by the diffusion of mass intellectuality, which led workers to refuse being mere appendages to machines. Post-Fordism/cognitive capitalism emerged in response to this crisis, promising to incorporate the creative energies of living labor. Virno and Vercellone appear to hold that this promise has been fulfilled within the labor process, with capital attempting to compensate for its loss of control in the labor process by becoming increasingly parasitical outside of it. As a result of increasingly arbitrary and irrational expressions of capital's power, the permanent crisis that tends to erupt due to the development of the general intellect has thus far remained latent. But the tendency has not been eliminated. Marx may have failed to anticipate the extent to which capital would incorporate the creative energies of the general intellect. But Virno and Vercellone nonetheless agree with him that the historical development of the general intellect sets the stage for a world historical rupture from capitalism. If and when the next crisis erupts, it too will be caused by the "No!" of living labor.

This does indeed go to the heart of the matter. The theories of form-determination and fetishism, the core of Marx's critique of political economy, have a clear practical implication: the social organization and material social practices of generalized commodity production must be radically transformed. The creative powers of collective social labor take the form of real abstractions that form-determine social life entirely because of living labor's separation from its products and conditions of realization.<sup>36</sup> Any radical transformation must begin by saying "No!" to this separation:

The recognition of the product as its [living labor's (ts)] own, and its awareness that its separation from the conditions of its realization is improper and imposed by force, is an enormous consciousness, and is itself the product of the mode of production based on capital, and just as much the KNELL TO ITS DOOM as the

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<sup>36</sup> "Obviously, the worker cannot produce without the objective conditions of labour. These are now separated from him in the form of capital and independently confront him. He can relate himself to them as conditions of labour only in so far as his labour itself has previously been appropriated by capital. From the standpoint of capital, the objective conditions of labour do not appear as necessary for the worker. What is essential to it is that they should *exist independently over against him, that he should be separated from them, that they should be owned by the capitalist*, and that this separation could only be abolished by his giving up his productive power to capital, in return for which capital should maintain him as abstract labour capacity, i.e., precisely as a mere capacity to reproduce wealthy as a force dominating that capacity and confronting it in the form of capital" (MECW 29/ 201-2).

consciousness of the slave that he cannot be the *property of another*, his consciousness of being a person, reduced slavery to an artificial lingering existence, and made it impossible for it to continue to provide the basis of production (MECW 28/390-1).

Nonetheless, it must also be acknowledged that Virno and Vercellone provide only part of a truly comprehensive account of capitalist crisis, even if it is ultimately the most important part.

No account of the crisis of Fordism should neglect how the global economy was plagued by an overaccumulation of capital in the early 1970s, or the importance of inter-capital (as opposed to inter-class) relations in explaining that overaccumulation. As in other periods of expansion, after World War II the surplus profits won by the most technologically dynamic sectors of capital attracted high levels of investment, and their high rates of growth had significant positive spill-over effects on other sectors. Eventually, however, the entry of more productive firms and plants in a given sector forced the established firms and plants that had considerable sunk costs in place to be content to win with an average rate of profit on only their circulating capital (Reuten 1991). The result was a lower rate of profit in the main sectors of the global economy. At this point, the Keynesian state in the U.S., committed to avoiding severe recessions (let alone depressions), adopted inflationary policies that were then transmitted to the capitalist world market<sup>37</sup> This overaccumulation crisis, and the inflationary crisis that followed in its wake, were structural features connected to, but nevertheless distinct from, the diffusion of mass intellectuality and the subsequent irruptions in class struggle at the point of production stressed by Virno and Vercellone.

Since the end of the post-WWII “golden age” overaccumulation difficulties have persisted in the so-called core countries of the world market. Such important features of the contemporary global economy as financialization, “accumulation through dispossession,” and massive foreign direct investment in China have been shaped by

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<sup>37</sup> Inflation in the global market was also worsened by the decision of political elites in the U.S. to in effect fund the unpopular Vietnam war by inflation rather than by raising taxes and/or cutting popular social programs. Oil was priced in dollars in the world market, so dollar inflation meant that the real income of oil producing countries rapidly eroded. In order to reverse this trend OPEC was formed, and the price of oil was raised, an “endogeneous” development in the world market mistakenly categorized as an exogenous “price shock.”

these difficulties (Harvey 2007). However important the rise of diffuse intellectuality may be, it does not justify downplaying the significance of the systematic tendency to overaccumulation crises.

Another respect in which the account of crisis provided by the theorists of the general intellect is oversimplified concerns their one-sided stress on the agency of living labor. Unfortunately, the agency of representatives of capital must always be taken into account as well; the demands of living labor are never the sole factor explaining either capitalist crises or their consequences. For example, the “1979 coup” raising interest rates in the U.S. was not simply a technocratic means to lower inflation. But neither was it a manifestation of the world historical defeat of capital’s project of subjecting living labor to real subsumption. It was the centerpiece of a political strategy to weaken living labor outside *and inside* the labor process (Duménil and Lévy 2004). The same can be said of the “neoliberal” and “neoconservative” policies that followed in its wake (free trade agreements, capital liberalization, privatization, structural adjustment programs, increased military spending, military interventions, etc. See Smith 2005). The crisis of Fordism/Keynesianism was used as an opportunity to aggressively impose new forms of formal *and* real subsumption on the global proletariat. It would be a mistake to underestimate the degree to which the agents of capital were successful in this endeavor, although there are increasing signs their successes may be short-lived.

This paper is already long enough. Let me conclude with two brief points. First, while the term “general intellect” is not used in the chapters on machinery in the *1861-63 Manuscripts* or the chapter “Machinery” in the first volume of *Capital*, Marx stressed the intrinsic connection between relative surplus value and the systematic tendency for the scientific-technical knowledge to play an increasingly important role in the production process. This is the concept of the general intellect, even if the term itself is not employed. Just as the term “capital in general”—also not used after the *Grundrisse*—remains central to the logical framework of *Capital* (see Moseley 1995), I believe the notion of the general intellect was not abandoned in Marx’s later writings.

Finally, I could not agree more strongly with Virno and Vercellone’s call for a non-capitalist social order based on democratic self-organization. In comparison to this

important point of agreement, the criticisms raised in this paper are entirely secondary matters.

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