The End of Value[1]

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Introduction

New technologies express the fulfillment of Marx's writings in his "Fragment on Machines" -- a production system without human labor, where the productivity of technology so overwhelms the production process that "labor time ceases to be the measure" of wealth and "production based upon exchange value collapses." Such a production system is antithetical to a system based on the expropriation of surplus labor, and by definition cancels it. However, production has not collapsed; rather than work disappearing, or at least lightening, more people than ever are engaged in wage labor; and each new high-tech production zone seems to be matched by a new Dickensian production zone. Can these two positions be reconciled?

This paper attempts such a reconciliation, towards coming to a better understanding of capitalism in the age of electronics, and what that means for the class struggle. I argue that as a historical category, Value has at least a theoretical end. Qualitatively new technologies are labor-replacing technologies, and lay the basis for Value-less production. This, of course, raises profound issues for Capital. The complex interaction of these new technologies and Capital, expressed in various counter-tendencies explains much about the state of capitalism today. The new technological climate does not in itself destroy the Value system, or capitalism, but it does create the conditions for Capital's destruction and the construction of a communist society. The end of Value is not automatic, but a conscious act by class forces born out of the new conditions.

These questions deserve much more research, and I encourage scholars to investigate more fully the issues raised below, towards a greater understanding of the state of the world today, that we might cross the "narrow horizon of bourgeois right" sooner than later.

Value as a historical thing

Capitalism, as a commodity-producing system, is a Value system. Value describes the presence and activity of human beings in the production of social life under specific historic conditions. It is above all a social relation. It emerges in human society at a particular stage of its development. Once the productive forces of society have developed sufficiently, and with it the division of labor; exchange and "the market" become possible. Once this occurs, the commodity emerges on the stage of human history, and with it, Value: "This division of a product into a useful thing and a value becomes practically important, only when exchange has acquired such an extension that useful articles are produced for the purpose of being exchanged, and their character as values has therefore to be taken into account, beforehand, during production." (Marx, 1967: 78) Evidence of exchange, and presumably production for exchange extends into pre-written history, and played a substantial role in the pre-industrial era, although not in the same "predominating and

1 This paper assumes that the concept of Value as laid out by Marx is valid and accurate. It is beyond the scope of this paper to do any more than assert this. The skeptic or naysayer is directed to the excellent work of a wide variety of contemporary scholars whose work includes the broad collection of papers presented at the International Working Group on Value Theory conferences over the past several years. See, e.g. http://www.gre.ac.uk/~fa03/iwgvt/), also Carchedi (1991) and Carchedi and Freeman (1996). While I take full responsibility for the ideas expressed in this paper, they would not be possible without the work and effort of many comrades, including those in the Institute for for the Study of the Science of Society (http://www.scienceofsociety.org), and those in the League of Revolutionaries for a New America (http://www.lrna.org)

characteristic manner as now-a-days." (Marx, 1967: 86; also see, e.g., Pound (1989), Frank (1998), Engels (1895))

With production for exchange, the commodity is born, and with the commodity, Value, and the subordination of human beings to things, the masquerading of human relations as relations between things. In commodity production's most complete and dominating expression, the capitalist system, labor power becomes a commodity, and the Law of Value -- that commodities exchange on the basis of the socially necessary labor contained in them[2] -- dominates and regulates the economy and the lives of those bound up in capitalist production relations.

A distinction should be made between "exchange", and other methods of distributing social wealth, e.g., "sharing" or "contributing". That is, there is a wide range of social production that takes place not for exchange. This could include production for immediate use in the commune or other relatively small social groupings, or at a much grander scale under different production relations. In addition, there are areas of social life that have historically been outside of commodity relations, although those areas are being rapidly levelled and commodified under capitalism today. This distinction is important because it helps to delineate the possible roles of human beings in the production of social life. These roles are historic ones, activity under particular conditions, bounded by the dominant production relations. Terms like "work", "labor", "the job" become imbued with particular meaning by social circumstances. The buying and selling of labor power does not describe the totality of possible relationships to production. Value does not encompass all forms of the production of social life, and not all areas of human activity are Value-producing. If goods are produced for use or immediate consumption, that is, they are not produced for exchange; if the social division of labor is such that the bulk of productive effort is not specialized or rather widely shared, if the legal constructions of ownership are impractical or non-existent, Value does not exist. Human activity continues, though not necessarily as the Value relationship, and as a result not with the mantle of "job" or "work" a la Maynard G. Krebs.

If Value has a historical beginning, and only exists as a social relation under certain conditions, we can see, and theorize conditions where it does not exist. A pre-Value world is a society of original communism, where "communism" describes a form of economic organization based on the organizing principle of from each according to ability, to each according to need, under conditions of what might be described as "absolute scarcity". We can imagine also a communism based on "absolute abundance."

The Destruction of Value

Marx's work on Value owes a great deal to the work of his contemporaries on thermodynamics (Caffentzis, 1997). Value is not created by machinery, merely transformed; nor is it created in the process of circulation, which can be called the "law of conservation of value" (Freeman, 1999). However, Value is created in the process of production, and Value may also be destroyed in the motion of Capital.

Carchedi (1991) discusses three possible ways that Value is destroyed: through value-destroying labor (during the production process), through wasted labor, where use values are unsold, and

2 This is a simplified e way of stating the Law of Value, and is not meant to be construed as suggesting an equilibrium economy, or that goods actually exchange at values, other than by accident. The notion of a "law" describes a "an objectively-given relation through which essence expresses itself as appearance". it implies and rests on the understanding of distinct use values sharing the the quality that they are products of human labor. Further, it is a "law of motion" -- a dynamic phenomenon. (Freeman, 1999) It ultimately describes and governs the motion of capitalism. The more developed capitalism becomes, the more completely a global general rate of profit forms, the more general and less specifically observable the Law of Value becomes.

thus the exchange value is unrealized after they are produced; and through technical obsolescence, where the full use value of the constant capital cannot be realized.

Value is destroyed as use values, the bearers of Value, are destroyed. The destruction of productive forces during war, the ravages of nature, uncompleted projects, and political acts (e.g., the abolition of slavery in the 1863 - 1865 period) destroys value.

There are circumstances of violence or apparent destruction that are not destruction of Value, but merely the transfer of it. For example, a famine that reduces a corn crop by half does not destroy value, rather the full labor going into the crop is concentrated in fewer outputs. The transformation from individual value to social value does not represent a destruction of value of the backward commodity, rather a transfer of Value from it to the advanced commodity. This is the same case with the transfer of value through the formation of a general rate of profit. "Moral depreciation" can be looked at in two ways. To the extent that equipment is depreciated on an accelerated schedule, the use value of the equipment is realized, it just raises the constant capital expended in production (rather than being expended over, say 10 million units over 10 years, it is expended over 5 million units in 5 years). To the extent that the depreciation is not anticipated, that is its usefulness is abruptly cut short, and must be "written off", the full use value is not realized, and hence the full exchange value is not realized. If the use value is preserved, Value is preserved. If the use value is destroyed, Value is destroyed with it.

The destruction of Value is significant because Value also represents purchasing power, and a decline in Value represents a decline in purchasing power, and a disruption of the reproduction of Capital. However, this process is part of the ongoing cyclical nature of capitalist crises (Carchedi, 1991). We might describe this as a "quantitative destruction of Value", distinct from a "qualitative destruction of Value" represented by the destruction of the technological foundation and social relations which make Value possible.

A post-Value world

The idea of a valueless system, or production of use values without exchange values, is not an alien concept to Marxism. Marx wrote about a production system without labor power, without value as the foundation of communist society in the "Fragment on Machines" from his economic notebooks of 1857-58 (aka the *Grundrisse*):

> ...In the degree in which large-scale industry develops, the creation of real wealth becomes less dependent upon labor time and the quantity of labor employed than upon the power of the agents set in motion during labor time. And their power ... in turn bears no relation to the immediate labor time which their production costs, but depends, rather, upon the general level of development of science and the progress of technology, or on the application of science to production. ... Labor no longer appears so much as included in the production process, but rather man relates himself to that process as its overseer and regulator ... The theft of alien labor time, which is the basis of present wealth, appears to be a miserable foundation compared to this newly developed one, the foundation created by large-scale industry itself. As soon as labour in its immediate form has ceased to be the great source of wealth, labor time ceases and must cease to be its measure and therefore exchange value [must cease to be the measure] of use value. *The surplus labour of the masses* has ceased to be the condition for the development of the general powers of the human mind. As a result, production based upon exchange value collapses. [emphasis in the original] (Marx, 1987: 90-91)

Later in the same section he refers to "the productive power of the means of labour developed to an automatic process" that "presupposes the subjection of the natural forces to the social intelligence" ("general intellect", taken here to mean the advance of knowledge about the workings of the universe that has become part of humanity's common treasury).

This development of the productive forces to "automatic process" and valueless production is elsewhere described as a precondition for communist society, as in this passage from Marx's 1875 *Critique of the Gotha Programme*: "Within the co-operative society based on common ownership of the means of production, the producers do not exchange their products; just as little does the labor employed on the products appear here *as the value* of these products, as a material quality possessed by them, since now, in contrast to capitalist society, individual labor no longer exists in an indirect fashion but directly as a component part of total labor. [emphasis in the original] (Marx and Engels, 1968: 323) And a few paragraphs later, "after the productive forces have also increased with the all-around development of the individual, and all the springs of co-operative wealth flow more abundantly -- only then can the narrow horizon of bourgeois right be crossed in its entirety and society inscribe on its banners: From each according to his ability, to each according to his needs!" (Marx and Engels, 1968: 324-5)

In *Capital*, Marx describes expanding knowledge of science and techniques as "natural forces of social labor", that, when "appropriated to natural processes, cost nothing." (Marx, 1967: 365). And elsewhere, "if ... an instrument has no value to lose, if, in other words, it is not the product of human labour, it transfers no value to the product. It helps to create use-value without contributing to the formation of exchange-value. In this class are included all means of production supplied by Nature without human assistance, such as land, wind, water, metals in situ, and timber in virgin forests." (Marx, 1967: 197) As science expands the exposed face of Nature, additional means of production become available, e.g., in the case of chemical and biological processes and other techniques that have become part of the "general intellect" or social knowledge. (Davis and Stack, 1993) The application of science to production results in the "gratuitous labor of machines", and is the basis for rising productivity. The rising productivity of labor, on the basis of more advanced techniques results in production of more use values without a corresponding increase in labor, human effort, exchange value.

The practical basis for Marx's projections, the technological foundation of his system of automatic machinery, however, did not exist in Marx's lifetime, his references to "automatons" and automatic processes notwithstanding. But the introduction of new technologies over the past 30 years, and still very much ongoing, do provide the basis for these projections becoming a reality.

New technologies

"New technologies" is a broad category that includes at least computers, digital telecommunications, bio-engineering, rocketry and satellites, lasers, and "smart" materials. These technologies emerge from a wide range of scientific fields, including physics, chemistry, and biology. They result from a deepening understanding of the universe, yielding up "in situ" benefits of Nature. These new technologies are not just an extension of discoveries stretching back to Marx's time and earlier, but represent a radical break with previous technologies and production systems.

The essence of the radical break is the *labor-replacing* quality of these new technologies. That is, they do not simply enhance the powers of the human being in the production process, they completely encompass the role of the human being. This marriage of capabilities is most apparent in the fields of computing and biotechnology (manifested in the self-activating and self-replicating cellular factory; see King and Stabinsky, 1998).

One of the most significant results of this expanding "general intellect" is the broad field of electronics, and in particular the invention of the microprocessor. Ramtin (1991) describes this as the qualitative break with the automaton that Marx describes. The "vast automaton, composed of

various mechanical and intellectual organs, acting in uninterrupted concert" (Marx, 1967: 395, quoting Ure) which inverted the role of the worker from subject to object, or director of the machine to mere appendage to the industrial automaton, is negated by the unification of subject and object into an automated system, brought to life now by the microchip instead of the worker. That is, the new technologies represent the ability to expropriate the skills of the worker, encode them in software, and bring them to life -- to record and playback -- in the absence of the worker, via the capabilities of the microchip harnessed to machinery. (Davis and Stack, 1993, 1997)

Such technologies make possible the eviction of the human being from the production process. Ramtin observes, "[S]uch a total fusion is, by definition, a negation of capital as an alien power, i.e. as a social power which confronts living labor." This qualitative advance means the negation of Capital, and of Value.

The social blender

The introduction of new productive forces into a mode of production process is complex, messy ... dialectical. The change from the electro-mechanical based production system to an electronic-based one describes a technology revolution. The technology revolution has prompted a profound reorganization of the economy, as capitalism has tried to accommodate and take advantage of the new technologies in the struggle to maximize profit. In its dialecticalness, we should expect that it will be uneven, characterized by advances and retreats, where old and new co-mingle and opposites interpenetrate, tendencies conjure counter-tendencies; actions, counter-actions.

The technological revolution has started in the most advanced sectors of the economy -- in Europe, Japan, but most of all in the United States. It is deploying in stages -- over time -- throughout the world economy. Some sectors that lend themselves to immediate rewards from relatively easy automation (repetitive tasks executed by expensive and/or recalcitrant and/or organized labor) are the first targets for new techniques; as technology advances, as more human capabilities may be cheaply replicated in technology -- more sectors of the economy are automated or taken over by new technology. Backsliding occurs as workers attempt to defend niches in the new production environment. The revolution moves forward in stages -- first replacing humans with robotic or bioengineered counterparts, then the reorganization of the production process around the new techniques, culminating in "a revolution in the general conditions of the social process of production, i.e., in the means of communication and transport." (Marx, 1967: 362)[3] The stages overlap, as subsequent stages begin before others are complete. The old and the new exist side-by-side for a time.

The difficulties of the quality of labor-replacing technology asserting itself within capitalism is described in two general criticisms: If these new technologies are labor-replacing, where is the evidence of a great leap in productivity? Certainly not in official productivity figures. And if these technologies are "labor-replacing", where is the empirical evidence of labor being replaced? Certainly not in employment figures. Addressing these criticisms reveals the dialectical nature of a technology revolution. The productivity challenge and employment challenge are two sides of the same argument, and can be approached by looking at the mechanisms that counteract the impact of labor-replacing technology.

The productivity challenge raised in several quarters (Henwood 1997, Madrick 1998, Sichel 1997), has been addressed elsewhere in somewhat more detail (Davis, 1998). But briefly, three responses may be raised.

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3 The chapter on "Machinery and Modern Industry" (chapter XV of volume I of Capital) describes the process of a technology revolution.

First, official figures typically measure productivity using non-Marxist methods. The ratio of gross output to hours worked does not measure the productivity of productive labor (labor that produces or modifies use values), but rather all labor, including both Marxist categories of productive and unproductive labor. Looking at the U.S. economy (for which productivity figures are most often cited), for example, Mohun (1999) observes that in "the changing structure of the US economy ... increasing amounts of surplus value are required to convert commodity capital into money capital and thence into productive capital." This increase in unproductive labor to ensure the circulation of commodities drags down the overall official productivity figures.

Second, the velocity of the technology revolution, with successive waves of improved technology is such that new technologies speed the depreciation of fixed assets as the "constant improvements robs existing machinery, etc. of a part of their use value, and therefore also their exchange value", or causing them to "transfer too great a portion of their value to the product in the way of moral depreciation" (Marx, 1981: 208-209), raising the contribution of constant capital to outputs, and thus dragging down productivity, and eroding the mass and rate of profit (Burns, 1998).

Once an automated system is in place, Morris-Suzuki describes the phenomenon of the "perpetual innovation" economy where "managers ... pour increasing amounts of capital and labour into the development of better software, new techniques, different products" in order to stay ahead of the technology curve. In the absence of any other source of new value in the automated production process, she argues that this is the only way for contemporary firms, in the absence of rigorous protection of "intellectual property", to maintain a mass of profit: "The fission of labour inherent in the nature of robots, in other words, creates a situation where it is only in the design of new productive information and the initial bringing together of information and machinery that surplus value can be extracted. Unless this process is continually repeated, surplus value cannot be continuously created, and the total mass of profit must ultimately fall. But over a fairly extended period of time it is possible that high levels of automation may be sustained by the incessant generation of new products and new methods of production." (Morris-Suzuki, 1997: 18)

Either way -- through the premature depreciation of constant capital, or through the increased demand for mental labor to create new techniques, the process at least retards the labor-replacing features of the new technologies.

Third, between the objective and measurable features of new technologies (e.g., processor speed, bandwidth, chemical and biological outputs) and their application in capitalist production, utilized by disaffected workers doing boring, tedious, mindless, absurd and/or stressful jobs, the failure of the new technologies to show more of an impact on productivity figures is not surprising. It is not that the technologies are not productive, but that capitalist production relations cannot optimally take advantage of what new technologies make possible.

The "end of work" -- that is, the end of the wage relationship -- does not come about in part for the above reasons. Employment also increases because counter-tendencies are set into motion. Caffentzis (1998) argues that Marx presented a later treatment of "automatic processes" in his discussion in Capital III of the "Law of the Tendency of the Rate of Profit to Fall". The "automatic processes", where variable capital and surplus value both approach zero, mean at the same time a declining, and disappearing rate of profit. But Marx argues that this is only a tendency, and that there are several counteracting influences that emerge. Here is Caffentzis' summary:

> These counteracting causes either increase the mass of surplus value (e.g., raising the intensity and duration of the working day), or decrease the mass of variable capital (e.g., depress wages below

their value, expand foreign trade), or decrease the mass of constant capital (e.g., increasing the productivity of labor in the capital goods industry, expand foreign trade) or some combination of these disjunctive possibilities.

Caffentzis (1997, 1998) points out that the application of advanced technologies in one sector of the economy is met with a corresponding expansion of degraded, low-tech high-value labor in other sections of the economy. Through the formation of a general rate of profit, value is transferred from the backwards, low-tech high-labor section of the economy to the low-labor high-tech industries.

The apparent coordination, where high tech production in some spheres is matched by corresponding low-tech production in other spheres, is not some internal self-regulating governor within capitalism to ensure that Value continues to be pumped into the economy to keep it eternally humming along. Rather, it is a consequence of *opportunity* (production under such labor-intensive conditions somewhere is possible, enforceable and practical -- in this case because new technologies of communication and transport make it so) and *need* -- the dynamics of capitalism demand that profit be maximized wherever possible.

One of the odd contradictions of electronic capitalism is that the path to laborless production (only to be achieved under communism) passes through more work. The electronic economy is the great speed up, intensifying the pace of work, while extending the working day to that of the robot. It enables the circulation of capital at faster speeds, so it turns over faster (to maximize profit); it demands that human beings keep up with the packets of digitized commodities zipping at the speed of light through fiber optic cables. The worker is required to work more hours, whether in competition with the robot (to pay off the $7500 average family credit card debt on the 13 credit cards; see Zuckerman, 2000), trying to hold on to a slipping standard of living; or because the worker, stripped of any social safety net, must fend for him or herself in the contingent economy. How else is a worker to survive under electronic capitalism, except by working harder, faster, longer?

The productivity and employment challenge can be addressed even more briefly: from developer of the productive forces, capitalist relations turn into their fetters. Between requiring more unproductive labor to ensure the circulation of commodities in a hyper-competitive, world-wide web driven global market; premature depreciation or expanded competing technical labor to remain competitive; or autonomous retaliation by workers, capitalism invokes or erects its own constraints on new technologies. Where new technologies enable access to cheap labor markets, or speed the circulation of capital over digital networks, or cheapen means of production or stretch what can be squeezed out of raw materials, or enable the commodification of new areas of social life, new technologies extend the life of capital, but at a steep social cost.

To the subjective

The idea that new technologies are labor-replacing, and make possible value-less production can be true, and accommodated with reality, in the simple proposition that what we recognize as capitalism today is simply, or in large part, the result of introducing these new technologies into capitalist production relations. The response of Capital to the microchip and the engineered gene and the laser is what capitalism looks like today, whether it is called "universalized capital" or "globalization." Globalization is simply a description of capitalism in the age of electronics (Davis, 1998).

This is capitalism in its full glory: it's basic instinct -- the maximization of profit -– unchained. This is the world we are delivered by our ruling class: the destruction of leisure, of family, of community, of culture, of spirit. This is the triumph of capitalism in the age of electronics: a dead

world – spiritually, culturally, ecologically.

New technologies, at the very most, describe or set the boundaries of social possibilities. As always, people make history, but also, as always, under specific conditions. The "end of work" or all of the springs of co-operative wealth flowing more abundantly are, as Caffentzis points out, are only two possible futures. A post-Value world could certainly take the form of technologically complex communism organized along the same lines; although dismal possibilities of a global concentration camp, or the varied nightmares of dystopian science fiction are possible, too.

Capital, like Value, is ultimately a social relation. The maximization of profit under capitalism in the age of electronics means the destruction of all sorts of relationships that comprised the previous set of social relations. It means the polarization of wealth and poverty and the deeper immiseration of most people. Each counter-action by Capital tears away at the social fabric of society, and at the planet that sustains it. Capitalism cannot construct a more livable world. Under such conditions, the role of the subjective -- the human response to desperate conditions -- asserts itself, and comes to the fore. This describes the "certain stage", the beginning of social revolution, the revolutionary moment, and hence the critical role of new ideas to give shape and historic meaning to these times.

The social forces churned up by the economic and social turmoil have the historical task of seizing control of the new means of production, to turn the new tools to their own benefit. Further discussion of this is beyond the scope of this paper, but also, this part of the discussion is terribly incomplete without it. But very briefly, out of profound changes in the technology climate, new classes with no place in the old system are emerging to champion the new production techniques, or more accurately, to fight to construct a world that they can exist in. (Peery, 1993, 1997, Institute for the Study of the Science of Society, 2000) This is how Value will end -- as a political act, the exercise of class power, arising out of and shaped by deep historical processes, but carried out finally by human beings.

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