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# Class-Biased Technical Change and Socialism: Some Reflections on Benedito Moraes-Neto's "On the Labor Process and Productive Efficiency: Discussing the Socialist Project"

*Amit Basole*

*Are capitalism's latest technological advances necessary/appropriate for a socialist society? Or can relatively technologically "backward" capitalist societies follow their own distinct path to socialism? Here I take Benedito Moraes-Neto's "On the Labor Process and Productive Efficiency: Discussing the Socialist Project" as a starting point for my own reflections on these questions, attempting to broaden the terms of the debate, elaborating on the class-biased nature of technical change, and laying emphasis on the dialectical relationship between technology and the relations of production. Taking a knowledge perspective on the labor process, I argue that premachinery manufacture and Taylorism-Fordism are aspects of the same class struggle, the attempt by capital to appropriate working-class knowledge and thereby create space for itself to control and manage the labor process. Finally, I question the "techno-optimism" which leads Moraes-Neto to assert that late-twentieth-century advances in technology are an exception to this rule.*

**Key Words:** Labor, Production, Social Relations, Taylorism, Technical Change

Are capitalism's latest technological advances necessary/appropriate for a socialist society? Or can relatively technologically "backward" capitalist societies follow their own distinct path to socialism? Marx considered this question in his letter to Vera Zasulich and arguably came down positively on the second question.<sup>1</sup> Benedito Moraes-Neto (2013) answers affirmatively to the first question. The "necessity of machinery" to overcome capitalism is demonstrated, according to Moraes-Neto, by the Soviet experience of Taylorism-Fordism and by the later Stakhanovism. At first

1. See Shanin ([1983] 2009) for various drafts of Marx's response to Vera Zasulich, a Russian communist. In response to Zasulich's question about the prospects for building socialism on the basis of the *mir*, the rural commune in Russia, Marx replies that in his opinion, "the commune is the fulcrum for social regeneration in Russia," though for this to occur "it must be assured the normal conditions for spontaneous development" (124).

glance, it appears that the adoption of such “dehumanizing” technologies in a socialist state might put one off the idea that capitalism’s latest tools ought to be adopted by the new socialist society. But to do so would be folly. Moraes-Neto argues that Taylorist-Fordist production techniques attempt to create a pre-machine-age division of labor (premachinery *manufacture* as opposed to *machino*-facture) in the machine age. Such techniques, rather than being an advance in productive forces of the kind seen by Marx as being critical for the transition to socialism, are regressive in nature. But, argues Moraes-Neto, there has been a revolutionary change in the labor process in the late twentieth century as a result of “microelectronic automation” which creates the possibility of transcending the tradeoff that economists since Adam Smith have noted in the capitalist labor process between productivity and alienation/dehumanization.

I am in sympathy with the attempt to identify relationships between technology and the social relations of production in order to say something useful about the productive foundation of a future socialist society. Here I take Moraes-Neto’s essay as a starting point for some reflections. In the first two sections, without disagreeing with Moraes-Neto, I attempt to broaden the terms of the debate. I challenge the view of technology as class neutral and lay emphasis on the dialectical relationship between technology and the relations of production, a dialectics that continues to the present day and to which “microelectronic automation” is not an exception. Second, taking a knowledge perspective on the labor process, I argue that both premachinery manufacture and Taylorism-Fordism are aspects of the same class struggle, the attempt by capital to appropriate the knowledge of the working class and to thereby create space for itself in controlling and managing the labor process (Marglin 1974, 1990, 2008).

In the next two sections, I challenge Moraes-Neto’s arguments more directly. First, I question the “techno-optimism” which leads him to assert that late twentieth century advances in technology resolve the dehumanization-productivity tradeoff. And subsequently I tackle the question of scarcity and material plenty. Seeing the problem of poverty and deprivation as mainly a question of equity and not efficiency (distribution, not growth), I caution against an uncritical acceptance of “material plenty” as a desirable goal for a future socialist society.

Finally, at the risk of stating the obvious, I emphasize that it may be unwise to speculate on which new technologies are appropriate to be carried over into a postcapitalist society. This question, like many other questions to do with the sociopolitical and economic organization of postcapitalist societies, should be tackled in the course of the concrete and specific political struggles that will give birth to these societies.

### Science and Technology: Class-Neutral or Class-Biased?

For Marx, socialism cannot be built on the foundation of manufacture because not only does it dehumanize the worker but it is also not as productive as *machino*-facture. Hence, the “impossibility of a hypothetical direct transition from manufacturing to

socialism—thus reinforcing the need for machinery” (3). According to Moraes-Neto, Marx acknowledges the dehumanization-productivity tradeoff and argues for a type of mechanization that increases productivity without causing alienation and the dehumanization of the labor process. The Fordist assembly line, though at first glance a “cutting-edge” technology of capitalism in the 1920s, is merely a “reinvention of manufacture” and hence “is not an illustration of Marx’s concept of the great industry; it is actually its denial.”<sup>2</sup> Since Fordist technology is not “machinery” in the sense intended by Marx, it cannot be the technical basis for socialism. The mistake of Lenin and other Soviet thinkers lies in thinking that industries based on such a denial of Marx’s idea of the machine could form the basis for a transition to socialism.

Though not directly confronted by Moraes-Neto, the following question arises. Was Soviet optimism regarding Taylorism-Fordism a consequence of viewing science and technology as class-neutral knowledge that can be put to good (socialist) or bad (capitalist) use? Carchedi (1991) argues that it was.<sup>3</sup> An important contribution of Marxist writers since the rise of the “New Left” in the 1960s has been to challenge the earlier uncritical “productivist” view that saw the “unleashing of the forces of production” under capitalism and the application of science to the labor process as occurring at least partially independent of the process of class struggle. Several authors have written extensively on this issue, critiquing the class-neutral view and arguing that scientific and technical change should be seen as the outcome of class struggle (Braverman 1974; Carchedi 1983, 1987, 1991; Marglin 1974, 1990; Levidow 2002; Lohia 1963). In this view, machines are not “tools” to be out in the service of capitalist or socialist ends but instead are saturated with class bias. This makes the adapting of capitalist technology to socialist needs a complex problem.

Though Marx sometimes writes as if he sees machines as class neutral, his treatment of this matter, particularly in chapter fifteen of volume one of *Capital*, suggests a more complex view. For example, he observes that “it would be possible to write a history of the inventions made since 1830 for the sole purpose of supplying capital with weapons against the revolt of the working class” ([1867]

2. A minor inconsistency in this argument seems to be that, according to Moraes-Neto (2003, 292–3), “the manufacturing system is based entirely on the human being as an instrument of production.” But if that is the case, on what basis can we also say that Fordism is a “reinvention of manufacture”? The former statement implies that the motive force, the controlling element in the production process, is the human being, while the Fordist assembly line transfers this control over to the machine. Marx makes much of this discussion of which is the motive power, human or machine, hence I believe it cannot be glossed over lightly.

3. “After Marx’s death, a certain orthodox interpretation of the production process gained widespread circulation in Marxism. In this view, production is based on a type of technology which is class neutral: technology’s development is due to its inner laws of development and therefore does not carry the class content of the society which has produced it ... Lenin’s view of Taylorism, and of its applicability to a socialist society, rests on this technological conception” (Carchedi 1991, 14).

1992, 563).<sup>4</sup> Although the class-biased nature of science and technology seems to be a direct corollary of the historical-materialist view, it is sometimes abandoned under the seduction of material plenty as justified by the claim that the forces of production develop according to their own “inner-logic.” But a nonessentialist version of Marxism that does not privilege productivity and that lays greater emphasis on the dialectical relationship between technology and social relations has no trouble accepting Marx’s view.<sup>5</sup>

Note that viewing technical change as class-biased change is not the same as seeing the domination of capital as complete and total. If the entire technological landscape is shaped by class struggle, then technology is not merely chosen by capital to extract as much value as possible; the technological landscape is rather a product of capital’s impositions pushed back and resisted by workers. Inventions may be made and research questions asked with capitalist class interests in mind, but this does not mean that the end result offers no contradictory possibilities of resistance. The implication is that in the transition to socialism (the nature of which is overdetermined by the concrete material and ideological conditions of the society in question, and the process of which is always contested and political) the problem of “choice of technique” will not be solved by experts but by the workers who use the means of production in question. It is thus a political problem that will be resolved only via class struggle.

### Knowledge as a Social Relation

One clear class consequence of the professionalization of science and its “systematic” application to the production process under capitalism is the severance of the connection between the working class and science. This aspect of Taylorism has

4. In a more sarcastic vein, parodying the bourgeois economists who do not acknowledge this class-biased nature, Marx ([1867] 1992, 568) notes:

The contradictions and antagonisms inseparable from the capitalist employment of machinery do not exist, they say, since they do not arise out of machinery, as such, but out of its capitalist employment! Since therefore machinery, considered alone, shortens the hours of labour, but, when in the service of capital, lengthens them; since in itself it lightens labour, but when employed by capital, heightens the intensity of labour; since in itself it is a victory of man over the forces of Nature, but in the hands of capital, makes man the slave of those forces; since in itself it increases the wealth of the producers, but in the hands of capital, makes them paupers—for all these reasons and others besides, says the bourgeois economist without more ado, it is clear as noon-day that all these contradictions are a mere semblance of the reality, and that, as a matter of fact, they have neither an actual nor a theoretical existence. Thus he saves himself from all further puzzling of the brain, and what is more, implicitly declares his opponent to be stupid enough to contend against, not the capitalistic employment of machinery, but machinery itself.

5. I should note here that what applies to class also applies to gender. Feminist scholars, both Marxist and non-Marxist, have noted that technical change under capitalism has systematically disempowered and marginalized women, historically.

received somewhat less attention than it deserves. Like my previous point, this one is also not contrary to Moraes-Neto's arguments. Rather, it attempts to broaden the debate. Instead of seeing Fordism as an anomaly or a throwback to older methods, as Moraes-Neto does, might it not be better understood as a machine-age implementation of a guiding philosophy of the labor process that came to fruition in the age of manufacture? I refer of course, to the real subsumption of labor to capital, the separation of conception from execution and the removal of control over the production process from the worker. In this respect I note that although Taylorism is often equated with the Fordist assembly line, it is a broader project of transferring the knowledge and control of the labor process from the worker to the manager, independent of the technical conditions under which this occurs. The Taylorist vision does not require machines, as Taylor's own famous example of loading pig iron makes clear, calling it "typical of perhaps the crudest and most elementary form of labor which is performed by man" (Taylor [1911] 1998, 40). Hence, any labor process at any level of technical development can be "Taylorized," as Braverman (1974) also shows.

Taylor envisions an appropriation of *knowledge* as a precondition of the appropriation of *labor*. Managers recognize that "workmen, included in the twenty or thirty trades, who are under them, possess [a] mass of traditional knowledge, a large part of which is not in the possession of management" (Taylor [1911] 1998, 32). Under scientific management, "The managers assume ... the burden of gathering together all of the traditional knowledge which in the past has been possessed by workmen and then of classifying, tabulating, and reducing this knowledge to rules, laws and formulae" (36).<sup>6</sup> This exacerbates the distance and hierarchy between science (formal knowledge) and what Sahasrabudhey and Sahasrabudhey (2001) have termed *lokavidya* (the knowledge of peasants and artisans, which is often labeled "traditional" or "indigenous").<sup>7</sup> It has far-reaching consequences not only in the organization of labor but also in the way new knowledge is produced. Braverman (1974) puts it thus: "As craftsmanship is destroyed or increasingly emptied of its traditional content, the remaining ties, already tenuous and weakened, between the working population and science are more or less completely broken. This connection was, in the past, made chiefly through the craftsman or artisan section of the working class" (131). He goes on to note that craft apprenticeship commonly included training in mathematics (including algebra, geometry, and trigonometry), in the properties and provenance of the materials common to the craft, in the physical sciences, and in mechanical drawing.

This theme has been elaborated on by several historians of science who point out that philosophy, science, and mathematics were once the product of artisans and

6. The attack on knowledge did not go without resistance. Braverman (1974, 94) quotes an editorial from the *International Molders Journal* which complains about the practice of "gathering up ... scattered craft knowledge, systematizing it and concentrating it in the hands of the employer and then doling it out again only in the form of minute instructions, giving to each worker only the knowledge needed for the performance of a particular relatively minute task."

7. See Basole (2012) for more details on *lokavidya*, science, and the labor process. Marglin (1996) has argued this point extensively. His terms for the two knowledge systems are *episteme* and *techné*.

manual workers, and it grew in connection with the solving of practical problems rather than divorced from them (Chattopadhyay 1986; Conner 2005; Farrington 2001; Zilsel 2003). The relationship between artisanal production and the development of science and technology persisted till the period of the industrial revolution in England. Iconic figures such as James Watt and George Stephenson were also craftsmen. The typical artisan was tied to the scientific and technical knowledge of the day as embodied in the daily practices of craft. Robert Boyle's impressive list of hundreds of crafts relevant to the development of science along with Bacon's and Descartes's emphasis on systematization of craft knowledge suggest the seriousness with which these "fathers of modern science" viewed craft (Conner 2005). Neither was working-class science (craft knowledge) lying chaotically dispersed, awaiting a true scientist to systematize it. Landes (1969, 63) found the theoretical knowledge of the craftsmen of the industrial revolution "striking" and denied that they were "unlettered tinkers of historical mythology." He emphasizes that "the growth of scientific knowledge owed much to the concerns and achievements of technology; there was far less flow of ideas or methods the other way" (61).

Leonardo da Vinci lashed out against the educated men of his day who had "strut about puffed up ... and adorned not with their own labours but by those of others" (Conner 2005, 263). And the words of Paracelsus, admonishing learned men, ring true today after 500 years: "They exploit the poor by pretending to knowledge they do not have. The common people are spiritually and intellectually superior to their social betters. If the notables would reform themselves, they would do well to go to the peasants and artisans to ... imbibe a genuine knowledge of nature" (303).

All this is to say that the bulk of what constituted science, except for perhaps the most rarefied of theory in physics and mathematics, was the legitimate domain of the working class and was produced not in "science factories" but in real ones.

"Smith's anguish," as Moraes-Neto calls the dehumanization-productivity tradeoff, is thus also the tradeoff between a democratic science and a highly productive one. A powerful argument in favor of the professionalization of science has always been the resulting increase in labor productivity. But as Marglin (1990) observes, when workers concede the inferiority of their knowledge before the knowledge of scientists and managers, they erode the cultural conditions of resistance. For example, unions no longer consider the shaping of the nature of technical change their business but rather focus on securing a just share of the increased product. Accepting the tradeoff, as Moraes-Neto also does, should the socialist concept of the relation between work and knowledge not put equality before productivity?

Somewhat more provocatively, manufacture may be less destructive of the worker's *lokavidya* than machino-facture. I realize that this is directly contrary to the view that sees labor as becoming more skilled with advances in technology and that it appears to be a naive Bravermanian thesis of deskilling. But returning to Marx, we should remind ourselves that in manufacture "the worker makes use of a tool" while in machino-facture "the machine makes use of him." Thus, the artisan's labor process may be self-directed to an extent even when it has been extensively reorganized to capital's own ends, and this unlike a worker's labor process, which to a much larger extent is other-directed via use of machinery (technical control), managerial hierarchy (bureaucratic control), or both. In the artisanal economies of

developing countries where complete separation of direct producers from the means of production has not occurred (for a variety of reasons including insufficient rate of capital accumulation and late industrialization), the labor process can show greater self-direction.<sup>8</sup> Why can a future socialist society not be built on such a technical foundation? The dominance of productivity over dehumanization in the classical tradeoff prevents us from imagining such a scenario.

### The Future Is Now?

Moraes-Neto (2013, 440) concludes his article on an optimistic note, declaring that the end of the twentieth century has produced “a highly efficient productive process run by a small contingent of workers strongly involved in their work, whose involvement is wholly determined by the full content of labor activities”—in other words, a transcendence of the problem underlying Smith’s anguish.

Moraes-Neto is not the first to express such hope with regard to new technologies. Mandel (1970, 46) notes the development of a type of automation that is “much less rigid ... and based on cybernetics,” that “creates the infrastructure for the withering away of alienating labor and is the pre-condition for all-around creative labor.” Other writers early on expressed similar views about the possibilities of these new forms of labor (e.g., Bell 1973).

But such “techno-optimism” (technology as the basis of freedom from want and the elimination of capital-labor conflict) seems as unwarranted from a dialectical perspective as does techno-pessimism (technology as purely an instrument of capitalist domination). Fuchs (2007) focuses instead on the contradictory possibilities of information and communication technologies (ICTs), showing for instance which new avenues of competition and cooperation have been opened up by the arrival of the Internet and also how the new management ideologies combine decentralization of production and management with centralization of capital and control. Similarly, Dyer-Witheford (1999) investigates the new techniques of domination in high-tech capitalism, although he leans rather more on the techno-pessimist side.

Moraes-Neto offers no reasons why the revolution in ICTs (“microelectronic automation”) should be an exception to the class-biased nature of technical change under capitalism. ICTs have indeed transformed the structure of production as well as the labor process in a wide variety of industries. But the extent to which this revolution has restored the “full content of labor activities” to the control of the worker seems overestimated. Indeed, if anything, constant and effective surveillance aided by these technologies has become the norm in low-wage production, as this description of a job in a McDonalds call center shows: “Software tracks [the worker’s]

8. Of course this does not mean such self-directed labor processes are not functional to capital, which is not interested in knowledge, whether scientific or traditional, but rather in value. The extraction of value is not deterministically linked to any one mode of management or any one type of knowledge. Capital vacillates between the tendency to simplify, control, and manage, which requires routines, mechanization, and procedures, and the need to grant workers a measure of autonomy and control, which requires flexibility and participation. Changing management trends reflect this fact.

productivity and speed, and every so often a red box pops up on her screen to test whether she is paying attention. She is expected to click on it within 1.75 seconds.”<sup>9</sup>

I realize that Moraes-Neto is not referring to low-wage work but rather to software professionals and the like. But are we in danger of making the same mistake for which Moraes-Neto rightly criticizes the Soviet planners? That is, uncritically accepting production processes developed under capitalism as appropriate for a socialist society? The extent to which the computer revolution has transferred autonomy to the workers rather than making them even more integrated into value-producing circuits by making blurry the boundaries between home and office, work and leisure, is an empirical matter. In other words, even though all technology is the product of a negotiation between capital and labor, a particular technology (computers for instance) can embody greater or lesser possibilities of resistance. A priori, we do not know. The theoretical point is that gains in autonomy and control, to be meaningful, must result from a political struggle and not be handed down via technical change.

That said, I do not want to belittle the impact of the ICT revolution. There has indeed been an important shift in the late twentieth century, but this is not only a technical shift. It is also an ideological shift that allows us to see aspects of social reality heretofore obstructed by the science-dominated view of the world. As I have argued elsewhere, the dramatic rise of interest in knowledge systems other than science, such as “traditional” or “indigenous” knowledge, is evidence of a shift from a production-based view of society to a knowledge-based view (Basole 2012). Insofar as this challenges the hegemony enjoyed by science and puts the focus on the knowledge of the working class, it is a favorable development.<sup>10</sup>

## The Specter of Scarcity and the Vision of Plenty

Let us return to Vera Zasulich’s query: Is it “historically necessary for every country in the world to pass through all the phases of capitalist production” (Shanin 1983, 99)? The most compelling argument against artisanal production is that it perpetuates poverty. According to Moraes-Neto it is impossible “to imagine a path to socialism by exchanging productivity for the humanization of artisanal labor, given the obviously deleterious effects of this choice in terms of satisfying the immense material needs of society.”

But a Marxist analysis cannot take these “immense material needs” as given. They must be analyzed, too, from a class perspective. Capitalism has muddied the waters greatly with regard to wants and needs. Not just in the advanced capitalist societies but everywhere in the world, consumption is increasingly substituting for production in the deriving of identity and meaning. Thus, capital is able to “buy” the docility of the working class by offering material plenty in the place of meaningful work.

9. See “The Long-Distance Journey of a Fast-Food Order,” *New York Times*, 11 Apr. 2006. <http://www.nytimes.com/2006/04/11/technology/11fast.html?pagewanted=all&r=0>.

10. For a typical example of worker’s knowledge from the knowledge-management literature, see Brown and Duguid (1998) on technicians who repair broken Xerox photocopiers.

Without a critique of the concept of “material needs,” discussions of productivity are too likely to accept the capitalist premise of the necessity of “high” or even “rising” material standards of living.

Further, even if a theory of consumption may not be Marxism’s traditional strength, a theory of work certainly is so. As Moraes-Neto observes, “For Marx, the abolition of class society requires the transcendence of alienated labor, i.e. the abolition of labor.” That is, if (alienated) labor is the “essence of private property,” then the abolition of private property under communism is also the abolition of (alienated) labor. But the abolition of labor is not the abolition of work. Although Marx does sometimes invoke a future society where immense increases in productivity have done away with the need for human toil, interpreted as abolition of private property, abolition of labor need not have anything to do with increases in productivity. Viewing work as something that confers disutility rather than as the foundation of human creativity and knowledge is of course the result of work becoming alienated labor under capitalism. It is in this context that the reduction in amount of work can become a measure of progress. When alienated labor is done away with, why the quest to minimize work? As Marglin (2008, 205–6) notes, “The problem is not that we must learn to sing once freed from economic necessity; rather, our fundamental problem lies in our inability to make our work sing even while we fulfill our economic needs.”

To question the need for increased productivity is to court the label of a primitivist or a poverty-monger. But the *lokavidya* standpoint alluded to here, rather than taking scarcity as the starting point, starts from the relationship between knowledge and the working class. It can even see what is often interpreted as misguided craft pride or the reactionary politics of the artisan classes as an element of progressive social change. It asserts that if the working class regains its confidence in its knowledge, sees itself not merely as a laboring class, then it can regain the confidence to stake a claim for the reorganization of society.

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