

SOME MARXIAN THEMES IN THE  
AGE OF INFORMATION

The radical conceptual and social changes related to recent developments in technology – aptly summed up under the term “computer revolution” – give new interest to certain basic tenets of Marx. But these tenets are at the same time moved into a perspective hardly envisaged by Marx himself.

There is, to begin with, one fundamental Marxian thesis which can definitely be said to have gained in plausibility. This is the thesis of *technological determinism* – relativized already by Engels,<sup>1</sup> contested by scholars of such different persuasions as Max Weber<sup>2</sup> or Georg Lukács,<sup>3</sup> but no doubt very strongly adhered to by Marx himself. Recall the well-known passage in *The Poverty of Philosophy*:

In acquiring new productive forces men change their mode of production; and in changing their mode of production, in changing the way of earning their living, they change all their social relations. The hand-mill gives you society with the feudal lord: the steam-mill, society with the industrial capitalist.<sup>4</sup>

And recall also the famous preface to the *Critique of Political Economy*, where Marx affirms that the way men produce their means of subsistence conditions their whole social, political and intellectual life.<sup>5</sup> That developments in microelectronics have deep implications for society and politics in the United States, in Western Europe, and in the Far East, is by now of course obvious. But it is obvious, too, that these implications are not independent of the social and political frameworks within which they emerge. There is one part of the world, however, namely Eastern Europe and the Soviet Union, with regard to which the political and social effects of the new technology are absolutely determining in the sense that they led to changes to which the dominant political forces have been rigidly opposed; to changes for which the inherited and existing political cultures in the countries in question – with no democratic traditions whatsoever in the Soviet Union, and with a bare minimum of such traditions in Eastern Europe – did not provide a framework, and did not herald any promise.

Has not recent history amply demonstrated that the dream of drawing closer to the West – characteristically not indulged in by Russians – could

at any time be turned into a nightmare in Eastern Europe? But then came the *chip*, and a very different picture emerged. The centralized economies of the so-called socialist countries proved to be unable to keep up with Western developments in microelectronics. As a consequence, the faith in the continuing military supremacy of the Soviet Union over the West wavered. Eastern European products became, for reasons of quality and price, increasingly difficult to export. Attempts at a decentralization of economy with no democratization of the political system failed. Liberalization at home and a new *détente* in foreign policy were the result. It would require a great deal of naivety not to see that in this instance, once more, a deeply Marxian idea has been confirmed: namely the idea that instead of the personal traits of political leaders forming their policies, it is, much rather, the exigencies of political realities that become reflected in the personal make-up of politicians.

Seen from a Marxist perspective, however, this state of affairs possesses a truly strange feature. For the economy providing a suitable framework for technological progress thus turns out to be not that of central planning, but that of the free market. Indeed the situation, as in particular the Japanese experience shows, is even more peculiar: the presence of some old-fashioned traditions in the texture of a liberal society does *not* seem to be an obstacle to the development of successful free enterprises, and, by implication, to advances in technology. And the joint values of the free market on the one hand and of traditionalism on the other add up to just about everything Marx *detested* – and to just about everything Marx’s arch-liberal adversary F. A. von Hayek stands for.<sup>6</sup>

Some central Marxian themes are, to be sure, only seemingly affected by the emergence of the new technologies. Thus for instance the labour theory of value, with all its implications, strikes one today, at a time when knowledge has become the supreme commodity, as utterly implausible; but this theory had never been a logically acceptable one, and was, precisely with reference to the effects of science, withdrawn by Marx himself. The plausibility of the labour theory of value has radically decreased because the element of labour *time* has lost its relevance as a source of added value. The substance of value, Marx held, is labour; its *measure* is time.<sup>7</sup> As exchange values, all commodities are but certain amounts of congealed labour time.<sup>8</sup> Today however it is obviously *knowledge*,<sup>9</sup> not labour time, that is primarily embodied in the added value of any commodity.<sup>10</sup> Incidentally, this was already the case, even if

to a lesser degree, in Marx's days – a state of affairs he fully realized,<sup>11</sup> but to which he gave a strangely twisted interpretation. As Marx saw it, the labour theory of value would cease to be valid once the capitalist mode of production had been superseded; and the signs that the theory *was* in fact becoming increasingly implausible he understood as heralding the imminent doom of capitalism. In this sense the labour theory of value was not susceptible to scientific refutation;<sup>12</sup> only the historical deed of establishing communism could prove it false – by rendering it obsolete. And it is indeed a piece of irony that the attempt at that historical deed led to an entirely different result: to the perfect realization of the labour theory of value, in the form of the Soviet *labour camp*. There, certainly, all work was reduced to uniform, simple labour, measurable in units of men and time.

Then there are other Marxian convictions, for instance some of those having to do with the idea of the concentration of capital, which, for a long time, seemed convincing, but appear antiquated in the light of today's high-tech economy, in particular in the light of developments in software engineering. Although huge enterprises obviously do play an important, sometimes dominant, role in the electronics industry, and although with the increasing tendency of programs to be written by large teams the costs of software production are, on the whole, rising, it is still the case that small firms in these areas continue to have relatively good chances of success, and that the software industry still offers entrepreneurial possibilities for programmers with practically no capital to invest. The success stories of bright teenager "hackers" – virtuoso programmers – in the United States and in Western Europe are a familiar theme. And it is significant that software development is practically the only economic domain where a backward country like Hungary, with no funds to mobilize, seems to be able to co-operate effectively, and in places to compete, with Western firms.

On the other hand the romantic-eschatological aspect in Marx – notoriously a cause of embarrassment to bureaucratic Marxism – is today acquiring an air of reasonableness. Certainly the overthrow of liberal institutions and the elimination of free competition by a revolutionary proletariat no longer has, for those who tried the Marxist experiment, the ring of promise it apparently possessed earlier. Yet the emerging technologies for handling information do indeed seem to herald a new age of community, of the *vergesellschafteter Mensch* – of participatory democracy, of a new craftsmanship, of non-alienated cultural patterns.

Discussing the historical role of a mode of production based on exchange values, Marx writes:

The universal nature of this production with its generality creates an estrangement of the individual from himself and others, but also for the first time the general and universal nature of his relationships and capacities. At early stages of development the single individual appears to be more complete, since he has not yet elaborated the wealth of his relationships, and has not yet established them as powers and autonomous social relationships, that are opposed to himself. It is as ridiculous to wish to return to that primitive abundance as it is to believe in the necessity of its complete depletion.<sup>13</sup>

Clearly, Marx's vision of a non-alienated past does indeed play a part in his dream of a non-alienated future.<sup>14</sup> And when depicting that future he strikes a utopian, almost millennial note. The historical mission of capitalism is fulfilled and a new age begins when the productive forces of labour have reached a stage at which general affluence is maintained by a minimum of labour essentially *scientific*, indeed by an activity which is really the free development of rich personalities.<sup>15</sup>

Now the specialist whose work is most deeply embedded in, and is perhaps most revealing of, the age of information, is the professional programmer. Thus in assessing the claim that the tendencies emerging in this age in a sense vindicate the Marxian utopia, it seems reasonable to begin by analyzing the way the members of this profession labour and live. First impressions are, certainly, discouraging. As Sherry Turkle writes:

In the course of the last decade programmers have watched their opportunities to exercise their expertise in a spontaneous way being taken away. Those who are old enough remember the time when things were different as a kind of golden age, an age when a programmer was a skilled artisan who was given a problem and asked to conceive of and craft a solution. ... Today, programs are written on a kind of assembly line. ... Thus programmers are particularly sensitive to the fragmentation of knowledge and the lack of a feeling of wholeness in work to which so many of us are subject.<sup>16</sup>

But this is not the only possible perspective. As David Bolter puts it:

The computer shows that even teamwork need not thoroughly subsume and homogenize the special contribution of each member. The best organization for many computer projects is modular: each member of the group is given a separate part of the larger program or machine design. This is not the stultifying specialization of the assembly line, where one worker performs one operation repeatedly for hours. Instead, each module may be a self-contained program or portion of hardware, with challenges and difficulties all its own.<sup>17</sup>

Another way to point to the non-alienating aspects of the computer is to highlight its *tool-like* character. “The computer is”, writes Bolter,

in some ways a grand machine in the Western mechanical-dynamic tradition and in other ways a tool-in-hand from the ancient craft tradition. The best way to encourage the humane use of computers is to emphasize, where possible, the second heritage over the first, the tool over the machine. – A machine is characterized by sustained, autonomous action. It is set up by human hands and then is more or less set loose from human control. ... A tool, unlike a machine, is not self-sufficient or autonomous in action. It requires the skill of a craftsman...<sup>18</sup>

Now Turkle, too, exploits – with reference to Marx<sup>19</sup> – the tool–machine distinction. “Tools are extensions of their users; machines”, she writes, “impose their own rhythm, their rules, on the people who work with them, to the point where it is no longer clear who or what is being used”.<sup>20</sup> At work – in the office, at the lab – the computer has become a machine; but *at home* – this is the aspect Turkle stresses – it can play the compensatory role of a tool. When people in the electronics industry, or professional programmers, speak of the way they approach problems on their home computers – in their free time, as a hobby – they convey “a sense of power” that comes from “having full knowledge of the system”, from working in a “safe environment” of their “own creation”.<sup>21</sup> Building up from machine code to finished project, becoming directly involved, as it were, with the workings of the CPU – the central processing unit – itself, turns the computer virtually into a physical tool.

The CPU’s primary activity is moving something that is conceptually almost a physical object (a byte of information) in and out of something (a register) that is conceptually almost a physical place. The metaphor is spatial, concrete. One can imagine finding the bytes, examining them, doing something very simple to them, and passing them on. ... People are able to identify physically with what is happening inside the machine. It makes the machine feel like a part of oneself. It encourages appropriation of the machine as a tool in Marx’s sense – as an extension of the user.<sup>22</sup>

The idea that it is the worker’s *free time* which constitutes the true domain of non-alienated activity is of course again a very Marxian one, one belonging to the less romantic layers of his thinking.<sup>23</sup> But it appears that it is precisely the romantic-utopian vision of the *Grundrisse* which today is becoming increasingly plausible. The emergence of the *homo otiosus*, the human being enjoying the leisure of his free time, will, so it seems, coincide with developments which lead to a blurring of the boundaries between working hours and the hours spent off work.<sup>24</sup> The main new element here is the possibility of working at home, the “return

to cottage industry on a new, higher, electronic basis, and with it a new emphasis on the home as the center of society".<sup>25</sup> Economically this might imply, as Toffler puts it, that

if individuals came to own their own electronic terminals and equipment, ... they would become, in effect, independent entrepreneurs rather than classical employees – meaning, as it were, increased ownership of the “means of production” by the worker.<sup>26</sup>

The possible sociological implications are no less significant:

If employees can perform some or all of their work tasks at home, they do not have to move every time they change jobs, as many are compelled to do today. They can simply plug into a different computer. – This implies less forced mobility, less stress on the individual, fewer transient human relationships, and greater participation in community life. ... The electronic cottage could mean more of what sociologists, with their love of German jargon, call *gemeinschaft*.<sup>27</sup>

It is not by their indirect effects on the local level however, but by their direct impact on a nationwide or even a global one, that computer networks contribute most significantly to the forming and maintaining of new communities. Discussing the introduction of personal computers in the late 1970s, Sherry Turkle points out that

they came on the scene at a time of dashed hopes for making politics open and participatory. Personal computers were small, individually owned, and when linked through networks over telephone lines they could be used to bring people together. ... The computer clubs that sprang up all over the country were imbued with excitement not only about the computers themselves, but about new kinds of social relationships people believed would follow in their wake. ... Personal computers became symbols of hope for a new populism in which citizens would band together to run information resources and local government.<sup>28</sup>

Such hopes might have been premature at the time; but they were certainly not delusive in principle. For computer networks can in fact become instrumental in overcoming the information gap separating the knowledge any individual has from the knowledge society at large possesses.<sup>29</sup> This information gap is, indeed, a real source of alienation in the modern world. In closed, pre-literate societies the knowledge conveyed by oral traditions was partly knowledge in the common realm; partly knowledge available to the initiated only, but to them in fact directly accessible. With the rise of literacy – a fundamental change in the technology of communication, information storage and retrieval<sup>30</sup> – knowledge became embodied in written texts. And the first early libraries contained in principle *all* there was to read: the information they provided

was a global one. Even a hundred years ago it was still possible for someone to assume that he was acquainted with all the essential documents that were of importance for his private and professional life. Contemporary man however has lost control over his informational environment.<sup>31</sup> Computer networks – representing a second fundamental change in the technology of communication – are a possible means to regain that control.