

In the text that follows, Berardi articulates a truly remarkable synthesis of the most important themes in post-workerist Italian thought. In the first part of his argument, Berardi explains how the Marxist-Leninist heritage, which dominated the Italian communist left during the 1960s and 1970s, was incapable of understanding the profound mutations of late-capitalist society. Hans Jürgen Krahl is remembered here as one of the first critics of traditional Marxist theory. According to Berardi, the increasingly “mental”—others would say “immaterial”—nature of work in post-industrial societies renders obsolete the Marxist definitions of work and of political struggle. In order to formulate a critique of the latest developments of capitalism, Berardi considers earlier theories of the relation between technology and political power, notably Marcuse’s critique of “one dimensional Man.” He then analyzes the contribution of North American theorists of the capitalist economy, like Peter Drucker, and of virtual communication, like Arthur Kroker and Michael Weinstein. In the last pages of the text, Berardi explains the theory of Exodus as the only alternative left to fight the control exerted by capital over technological discoveries and imaginative potentialities, an alternative that implies a constant struggle to be waged in late capitalist development—that is, the construction of subjectivity and affects.

Considering that this essay was first published in 1998, when the phenomenon of the World Wide Web was still in its early stages, it is quite stunning to see that Berardi’s analysis has lost none of its timeliness.

Giuseppina Mecchia, translator

Technology and Knowledge in a Universe of Indetermination

Franco Berardi (Bifo)

I. Leninism Cannot Explain the Metropolis

Hans Jürgen Krahl died one evening in 1970, in a car accident. He was not yet 30, but he was already one of the most influential thinkers of the German anti-authoritarian movement, which had exploded in the streets in 1967, when, in the course of an anti-imperialist demonstration against the Shah of Iran, a 26 years-old-student, Behnno Onesorg, had been killed by the police. The movement had spread rapidly among the students, who were fighting for the democratization of German society

while protesting against the Vietnam War and denouncing, sometimes with clamorous activities, the media intoxication produced by the newspapers belonging to the Springer group.

The German movement—which at the time was mostly organized within the SDS (*Sozialistischer Deutscher Studentenbund*, German Socialist Student League)—was split, from the very beginning, between two theoretical poles, one believing in centralized organization and the other promoting “spontaneous” action. The first pole would give birth, in the following years, to the Marxist-Leninist *Rote Zellen*, while the latter would animate the multifaceted experiences of the youth movement, from the *Jugendzentren* to the *Autonomen* collectives. In the two years before his death, Hans Jürgen Krahl had been elaborating the foundations of a post-Leninist revolutionary theory. The situation of those years has been described by his collaborators in their introduction to a collection of Krahl’s essays entitled *Constitution and Class Struggle*.²

The impossibility of making a systematic elaboration of the theoretical problems raised by Krahl is not due entirely to his death; rather, the unfinished state of his work is the direct expression of a political situation where the traditional theories concerning workerist movements were being contradicted by praxis, but still in the absence of an adequately elaborated theory of revolutionary movements in late-capitalist metropolitan environments.³

In this book, composed of dense philosophical fragments, Krahl questions the possibility of reducing the new social composition of intellectualized labor to the political and organizational categories of traditional workerist movements, starting from the thought of the Frankfurt School, and of Adorno in particular, and anchoring its critique in the praxis of alienated labor and of anti-authoritarian struggles:

The traditional theories of class consciousness, especially the ones derived from Lenin, tend to separate class consciousness from its economic elements. They neglect the meta-economic, constitutive role played by productive subjectivity in the creation of wealth and civilization.⁴

The analytic separation between the sphere of economics and the sphere of consciousness, which remains valid when productive labor is structurally separated from intellectual labor, tends to lose its meaning when intellectual work becomes a constitutive element of the general production process. Consequently, “the reduction of production to economic elements is a bad feature of the capitalist mode of production.” Production cannot be considered as a purely economic process solely

determined by the laws of supply and demand: other, extra-economic factors contribute to it, and they become all the more decisive with the progressive intellectualization of the production cycle. Social culture, contrasting imaginations, expectations and disappointments, hate and loneliness: all these elements modify the rhythm and the fluidity of the production process. The emotional, the ideological, and the linguistic spheres influence social productivity. And this becomes clearer when emotional, linguistic, and creative energies are increasingly involved in the production of value.

Hans Jürgen Krahl was able to anticipate all of these developments—and the innovative content of the changes in production characteristic of these last decades, which have seen the obsolescence of the industrial model—at the conceptual level, following the threads of a reflection fully contained within the abstract categories of critical Marxism:

Working time remains the measure of value even when it no longer includes the qualitative extension of production. Science and technology make possible the maximization of our labor capacity, transforming it into a social combination that, in the course of the capitalist development of machinery, increasingly becomes the main productive force.⁵

In his *Theses on the General Relation Between the Scientific Intelligensia and Proletarian Class Consciousness*, which appeared in 1969 in the journal *Sozialistische Korrespondenz-Info*, Krahl reflects on an issue that occupies a pivotal place in the political problematic of the movement. This central issue is technology, understood as the specific form of the relation between science and labor processes:

The technological translation of science into a system of mechanisms constituting a fixed capital—which has been systematically implemented since the end of the nineteenth century—and the tendency towards automation have changed what Marx called the real subsumption of labor under capital. The real subsumption is different from a purely formal one because it modifies qualitatively even the technological structure of the immediate labor process. This happens through the systematic application of the social forces of production and the separation between labor and science. The labor process then, understood as the organic exchange between man and nature, is socialized in itself. One of the most remarkable traits of the real subsumption of labor by capital is, as Marx said, “the conscious application of science, which is a general product of social development, to the immediate process of production.” Social combination makes production increasingly scientific, thereby constituting it as a totality, as a “total” worker, but at the same time reducing the working ability of the single individual to a simple moment. [...]

The application of science and technology to the process of production has arrived at such a level of development that it threatens to explode the system. It has caused such a socialization of productive labor that it can no longer tolerate the objectified form of work imposed by capital.⁶

These analytic considerations necessarily lead the young theoretician to raise a decisive question, radically challenging the organizational modalities and the political projects of twentieth-century worker movements, which the anti-authoritarian groups of the 1960s had shaken without being able to break away from them:

The absence of a reflection about the theoretical construction of class consciousness as a non-empirical category [...] had the consequence, within the socialist movement, of reducing the concept of class consciousness to its Leninist meaning, which is inadequate to the metropolis.⁷

Leninism, as an organizational model and an understanding of the relation between social consciousness and the totality of the labor process, is inadequate when dealing with the metropolitan condition. Leninism is founded on the separation between the labor process and higher activities of knowledge (consciousness). This separation is grounded in the proto-industrial work form, and is valid as long as the worker knows his job without having any awareness of the system of knowledge structuring society. The basis for this distinction, though, becomes increasingly fragile when the mass-worker takes shape on the social scene, because the mass-worker, forced into an increasingly repetitive and fragmented activity, develops his sociality in an immediately subversive, anti-capitalistic dimension.

Finally, this separation becomes completely unfounded when we start talking about the mental nature of social labor, where the single, intellectualized operators become the bearers of a specific knowledge and develop a perception—tormented, tortuous, and fragmentary, to be sure—of the social system of knowledge traversing the totality of the productive cycle.

II. Technology and One-Dimensional Thought

During those years, Marcuse was also considering the problem of the relation between forms of thought and social production. The teleology of technology in the productive sphere ends up enslaving the thought process from the viewpoint of its very epistemological structures:

The feature of operationalism – to make the concept synonymous with the corresponding set of operations – recurs in the linguistic tendency “to consider the names of things as being indicative at the same time of their manner of functioning, and the names of properties and processes as symbolical of the apparatus used to detect or produce them.”⁸

From this point of view, Marcuse also says that “the totalitarian universe of technological rationality is the latest transmutation of the idea of Reason.”⁹ This totalitarian twisting of the idea of Reason acts in such a way that it closes the human perspective in two directions: the one-dimensional reduction of reason to its operational and functional form reduces to a single dimension society’s possibilities for thought and imagination. On the other hand, technology itself is flattened out, so that it is no longer a field open to experimentation and creativity on the part of society, but an activity having only one possible dimension of development: the capitalist one, which has been subjected to the restricted functionality of a profit-based economy.

In another book, *Eros and Civilization*, which was published in Italy in the same period, Marcuse developed the theme of technology’s liberating potentialities, but it is in *One-Dimensional Man* that he denounced the reduction of these potentialities by functionalism. Marcuse opposes the dialectics of a self-realizing reason to the functionalist reduction. His point of view remains idealist, and in his thought there is no reference whatsoever to the concrete process of social re-composition; nonetheless, he seizes on an essential trait of late-capitalist development:

Dialectic thought conceives the dialectic between “is” and “ought” first as an ontological condition, pertaining to the structure of Being itself. However, the recognition of this State of Being—its theory—intends from the beginning a concrete practice. Seen in the light of a truth which appears in them falsified or denied, the given facts themselves appear false and negative. Consequently, thought is led, by the situation of its objects, to measure their truth in terms of another logic, another universe of discourse.¹⁰

Marcuse’s book describes the tendency toward the full integration of Logos and production through the use of technology. The horizon of this trend is the digitalization of the world: *a digitalization that becomes the paradoxical realization of Hegelian pan-logism, in its a-dialectical, de-potentialized, pacified version.*

The incessant dynamic of technical progress has become permeated with political content, and the Logos of technics has been made into the Logos of continued servitude. The liberating force of technology

– the instrumentalization of things – turns into a fetter of liberation;
the instrumentalization of Man.¹¹

The use of algorithms in the process of production and its transmission within the logical machinery crystallizes a certain kind of rationality, its operational form. But in this manner the world is subsumed (reversing Hegel) under its logical-digital reduction, and thereby it is forever stuck in the capitalist form incorporated into technical Reason: “Technology has become the great vehicle of *reification* – reification in its most mature and effective form.”¹²

III. Work, Action, Thought. Exodus and Networks

In a beautiful essay entitled “Virtuosity and Revolution (The Political Theory of Exodus)”, Paolo Virno raises the issue of work in its most radical terms, thereby tackling directly the distinction between work and action. Marx distinguishes between work and action in the first page of *Capital*. But today, Virno says, the distinction becomes difficult, having been erased or maybe absorbed by the transformations undergone by work: “Nothing appears as enigmatic today as the question of what it means to act.”¹³

How can we define action? Virno asks. According to two boundaries, he answers: “The first relates to labor, to its taciturn and instrumental character, to that automatism that makes of it a repetitive and predictable process. The second relates to pure thought, to its solitary and invisible nature.”¹⁴

But these two boundaries are confused today, when the field of action overlaps with the space of work and work overlaps with intellectual activity: “Work has absorbed the distinctive traits of political action, and this annexation has been made possible by the intermeshing between modern forms of production and an Intellect that has become public.”¹⁵

On the other hand, the distinction between working and political activity is lost – not only, as Virno remarks, because of the increasing bureaucratization of politics (which was observed long ago), but also (and most importantly) because the post-Fordist labor process is essentially an elaboration and transmission of information, a communicative manipulation of the relationship to other people and therefore, finally, a political activity. The assimilation of work into action has made the latter less desirable, says Virno, but at the same time we need to recognize that the condition of labor has become more desirable, precisely because of an increasingly mental labor cycle. Today, the identity formation of the worker is helped by the fact that his or her

communicative abilities are involved in the productive processes, that his or her individuality is seen as an ability to act.

Nonetheless, it is also true that this is also a formidable impoverishment, because what is at work here is the submission of the singular qualities of the person to the economic semiotization that is now the paradigmatic rule of capitalism.

What other meaning can we give to the capitalist slogan of “total quality” if not the attempt to set to work all those aspects that traditionally it has shut out of work – in other words, the ability to communicate and the taste for action? And how is it possible to include in the productive process the entire experience of the single individual, except by committing her or him to a sequence of variations on the theme, of performances? Such a sequence, in parody of self-realization, represents the true acme of subjugation. There is none so poor as the one who sees his or her relation to others, his or her own possession of language, reduced to waged labor.¹⁶

The category of alienation, which describes the forms of industrial labor had brought about the estrangement of the worker from his or her work and therefore the possibility of autonomy. The detached gaze of the worker on the productive process was in fact a positive, creative factor, which is now lost in the organic-inorganic continuum of the integrated cycle of production. According to Jean Baudrillard, this situation poses a new question:

Am I a man or a machine? In the relation with the traditional machines this ambiguity didn't exist. The worker was always foreign to the machine and therefore alienated in it. As a man, he maintained his precious quality of externality. The new technologies, instead, the images, the interactive screens, live with me as if in an integrated circuit. Video, television, computers, networks: these are contact lenses, transparent prostheses which are integrated to the body to such an extent that they become a genetic part of it.¹⁷

The human body and mind are caught in a permanent circuit of electrocution; they are now part of an integrated circulation of information. The horizon for Virno's call to an action that could be autonomous with regard to the reigning paradigm is Exodus, that is, the constitution of a public sphere that would not intersect the plane of consistency of the capitalist economic sphere and that would not be subjected to its rules:

The key to political action [...] consists in developing the public nature of Intellect outside of Work, and in opposition to it. [...] I use

the terms Exodus here to define mass defection from the State, the alliance between general intellect and political action, and the movement of the Intellect toward the public sphere.¹⁸

Exodus happens through the constitution of a parallel plane of communication, which is independent because it does not interact any longer with the logic of economics. The trend indicated by Virno in the metaphor of Exodus is all but a utopia, and in fact we see it operate through the constitution of the Net (if we consider it as a connective model that has found in the proliferation of the Internet its best known, but not its sole, configuration).¹⁹

What are the characteristics of the Net? First of all, the Net is a place where communicative action establishes its own plane of meaning. There is no world pre-existing the moment of communication. There is no co-extensive world. Every interruption in communication corresponds to the turn-off of that particular public world. Secondly, the Net is a circuit where the contents of the exchange – messages, products, the objects of the public sphere – can go from one point to another without passing through any center, and without constituting an area of belonging. Finally, in the Net the agents don't bear an identity, or rather, it is a place where identity and the flow of enunciation don't necessarily coincide.

Let us not talk about the Internet, and all the time that it makes us waste looking at a screen that flashes mostly useless data at us. I am not interested in talking about the Internet, but about the Net, that is, the paradigmatic model that it implies. The Internet is only a laboratory for experimenting ways of communicating that will become ever more concrete, involving, and fast. The Internet will assume unforeseeable characteristics, tied to various possibilities: it might connect to television and thereby to the transmission of presence; it will plug into virtual Reality and the production of immersive worlds of experience; or, maybe, it will become a supermarket. In any case, this will not prevent the model of the Net from producing new forms of social relationships. Still, the current transformation of the Internet shows a first crystallization of the Exodus described by Virno. And this crystallization is disquieting.

Arthur Kroker, a Marxist critic from Canada, talks about the formation of a *virtual class* in the course of the transformation of the Internet into an Infobahn. The construction of the Infobahn by the big multinationals involved in the production of network software, the telephone companies, and the technocratic nation states introduces into the living body of planetary communication a structure which predetermines statistically average paths of navigation. At the same time, the virtual class segregates itself, isolating its sphere of activity from the social life of the majority of humanity. A small percentage of human beings enclose themselves in a pressurized cabin which will allow

them to come into contact with 200 million of their peers, while the other six billion are left to drown in the nightmare of a concrete relation deprived of any intelligence, of any public dimension. Concrete humanity becomes residual, while the decision processes are all absorbed in an inaccessible circuit: "The information highway is the antithesis of the web, in much the same way as the virtual class needs to destroy the *public dimension* of the Internet for its own survival."²⁰ The construction of an autonomous public sphere loses, at this point, its most significant characteristics:

[...] now that the cybernetic grid is firmly in control, the virtual class must move to liquidate the Internet. It is an old scenario, repeated this time in virtual form. Marx understood this first: every technology releases opposing possibilities towards emancipation and domination.²¹

Kroker's and Weinstein's essential intuition is precisely the contradiction between data and meaning. The Net represents a circuit of collective and interactive search for a constantly redefined social meaning. The Infobahn, instead, is the backbone of a system in which meaning has to be eliminated because it slows down data circulation:

Cyber-activity is, however, the opposite of social relation. The human presence is reduced to a twitching finger, spastic body, and an oversaturated informational pump that surfs the channels, and makes choices within strictly programmed limits. What is really "interfaced" by *Cablessoft* is the soft matter of the brain [...]. When knowledge is reduced to information, then consciousness is stripped of its lived connection to history, judgment and experience. What results is the illusion of an expanded knowledge society, and the reality of a virtual knowledge. Knowledge, that is, as a tightly controlled medium of cybernetic exchange, where thought has a disease, and that disease is called information.²²

The authors of *Data Trash*, therefore, consider inevitable the transformation of the system of generalized virtual exchange, which first appeared as the Internet, into a system that perfectly embodies the alienating principle of capitalism. Capitalism is founded on the principle of progressive abstraction: human activity is emptied of its concrete relation to the product, to knowledge, utility, and pleasure. This is how it becomes labor producing exchange value. Exchange value, in fact, is purely and simply crystallized labor time, which is fundamentally indifferent to the concrete quality of any activity. The exchange of signs has to become an abstraction from meaning, pure data transmission, in order to be able to function as a generalized economic exchange system. The signs derived from the info-productive process are separated from the function of exchanging meaningful contents. The exchange of signs between different points shouldn't contain any residual knowledge, but it needs to become a pure and simple flow of an exchange value reduced

to its most absolute abstraction: information. Information has completely replaced meaning. But the emptying out of the sphere of meaning by information, the increasing abstraction of cognitive activities which has followed the abstraction of material production realized by industrial activity, does not happen without consequences. And this is why Kroker and Weinstein see the spread of a strange epidemic, which is already showing its first symptoms: an epidemic of retro-fascism.

What is retro-fascism, according to the sociological imagination of Kroker and Weinstein? It is the reaction of a body that has been humiliated and marginalized by the digitalization of every communicative and social form of exchange. This reaction assumes the aspects of demented aggressive behaviors – demented, because intelligence has been entirely subsumed and absorbed under the abstract machine of info-production:

Virtual capitalism is perpetually failing behavioral organisms, placing them in a state of permanent insecurity. When virtual capitalism creates insecurity through its perpetual displacements, (recombinant) fascism comes in to mobilize the hatred for existence.²³

An existence emptied of all meaning, reduced to a simple re-assembling of data, can only inspire hatred in the organisms who are subjected to it by the re-combined abstract machine. Aggressivity against other people's existence is really a reaction against existence in general, and first of all against our own:

[...] Capitalism is not yet fully telematic and still has the need for some labor and some fleshly purchases. Enter fascism, which mediates between dying labor, itself constituted by the opposition of the will to live and the will to virtuality, and the abstract cumulative will of capitalism, itself an intermediate form of the will to virtuality.²⁴

Here we re-encounter a question that had already been elaborated by Deleuze and Guattari through the complementary notions of *deterritorialization* and *reterritorialization*. In their works, Deleuze and Guattari define universal history as a process of deterritorialization. Capitalism represents the highest and most violent moment in this uninterrupted process. Precisely because it erases history (the history of individuals, communities, places, and activities) capitalism constitutes the universal truth of history. But what is deterritorialization? It is the passage from a coded to a decoded reality, from the recognizable to the opaque. Deterritorialization is the process which uproots the individual from his familiar, territorial, ideological, and professional origins, throwing him into an abstract process of exchange accelerated by technology and communication and now reaching its maximum speed through digitalization.

From the very beginning of its development, capital set deterritorializing processes into motion: with the affirmation of

industrial society, traditions lose their strength, family ties are weakened, old rituals disappear along with all the forms that we respected and considered sacred. Capital, after having put into question traditional institutions like the family, religious faith, and communal values, is now destroying, in its late-modern plenitude, the political and psychological barriers which had formerly allowed its development: nationality, language, and finally work itself. Now, capital is focused on the pure and simple circulation of digitalized information.

But when capital gets to this point, there is nothing that can replace the identities that human beings once found in the family, in religion, in the nation, or in their work. And human beings are not culturally used to not belonging anywhere, to living without an identity. The retro-fascism described by Kroker and Weinstein is precisely a reaction against the void caused by the virtual phase of capitalism. This is why just when capital achieved a full dis-identification all sort of archaic, traditional, proto-modern processes of re-identification are unleashed: religious fundamentalism, nationalism, populism...

The residual function assigned to the body as a consequence of the digitalization process provokes its desperate rebellion, expressed by a clinging to all forms of traditionalism, of identitarian memories, and finally of aggressive behaviors. The desiring body cannot tolerate being erased, removed, reduced to a simple residue.

This is what causes the retro-fascist reaction: the re-emergence of the foreclosed body is both aggressive and self-destructive. And it couldn't be otherwise, because the virtualization of the social negates any possibility of influencing the essential choices which are made in a sphere that is inaccessible to the physical aspect of sociality. This is why the masses, reduced to a residue, can only tear each other apart in the name of archaic ideals and mindless oppositions. But there is no longer any circulation of concrete intelligence: it has all been absorbed in the virtual circuit. This is why human behavior appears increasingly mad.

IV. Cognitive Labor and Info-Production

The fundamental political problem of 20th century worker movements has been the conquest of power and the construction of socialism. These two objectives have systematically deflected the productive power of social struggles and creativity. Not only did they deflect it, but they actually used it against itself. Today that orientation has disappeared, not only because the word "socialism" lost all meaning with the fall of the social-authoritarian regimes, but also because the new social and technical composition of productive labor radically

modifies the terms of any discussion concerning government and organization.

When we talk about the mental nature of the productive process we mean that the functions assigned by governments to the productive processes are subsumed and internalized by them. There is no longer any distinction between processes of social labor and the general governance of society. Of course, there remains the fiction of a political decision, of a political representation, but the actual ability to govern the social processes on the part of the political will can only play an extremely marginal role. It isn't politics (with all its complicated mechanisms of representation, decision, and sanction) that decides on the fundamental questions arising in the spheres of technology and finance or in the creation of an interface connecting technology, finance, society, languages, and the imaginary. Government is integrated into the circulation of information, if we consider information in its fullest sense, as an algorithm of processes that can be activated by techno-social automatism. Programming, understood as the elaboration of a software able to analyze, simplify, systematize, and mechanize entire sequences of human work, is at the core of government action, if we call government a function of decision and regulation.

Within the process of techno-social elaboration, of software development, we see the configuration of alternatives which have completely disappeared from the scene of political representation and of ideology. According to the user interfaces realized by the programmer, technology can function either as an element of control or as an agent of liberation from work. *The political problem is entirely absorbed within the activity of the mental worker, and of the programmer in particular.* The problem of the alternative, of a different social use of certain activities, can no longer be detached from the very forms of this activity.

The person who works in a machine shop, or on the assembly line, has to separate herself from her workplace if she wants to rediscover the conditions for a political transformation, if she wants to upset the political and technological modes of oppression. This is why, during the proto-industrial era, it was necessary to build a political organization external to the factory and to the working knowledge of the worker. But this is no longer the case when work becomes an activity of coordination, invention, understanding, and programming. In the age of mental labor, the problem of organization and of political action can no longer be separated from the one concerning the paradigms of the productive operation.

Software programming reveals the close relation between dependent labor and creative activity; in this case, we observe how the mental

work of the programmer acquires a political function of transformation within his very way of operating, and not only a productive function of valorization. The two functions can be distinguished in the sphere of project-oriented consciousness, but they live on the same operational plane. The consequence of the increasingly mental nature of social labor is that politics is replaced by an internalized function of social production and becomes a specific and decisive choice between the alternative uses of a certain knowledge, an invention of interfaces situated between crystallized information and social use, between cognitive architecture and an ecology of communication. Obviously, this doesn't prevent politics from continuing to celebrate its ever more excessive rituals. But these rituals have lost their efficacy; their only consequences are internal to politics itself. But if this is what is happening to politics, what about economics, both as a discipline and as a field defining human activity? Is economics still a science when the determining factors in the economic field are becoming unstable and immaterial, when they seem to elude the quantifying rules which are at the core of economics as a conceptualizing system?

Keynes, the post-Keynesians and the neo-classicists alike cast the economy in a model in which a few constants drive the entire machinery. The model we now need would have to see the economy as "ecology," "environment," "configuration," and as composed of several integrative spheres: a "microeconomy" of individuals and firms, especially transnational ones; a "macroeconomy" of national governments; and a world economy. Every earlier economic theory postulated that one such economy totally controls; all others are dependent and "functions." [...] But economic reality now is one of three such economies. [...] None totally controls the other three; none is totally controlled by the others. Yet none is fully independent from the others, either. Such complexity can barely be described. It cannot be analyzed since it allows of no prediction.

To give us a functioning economic theory, we thus need a new synthesis that simplifies – but so far there is no sign of it. And if no such synthesis emerges, we might be at the end of economic theory.²⁵

Economics became a science when, with the expansion of capitalism, rules were established as general principles for productive activity and exchange. But if we want these rules to function we must be able to quantify the basic productive act. The time-atom described by Marx is the keystone of modern economics. The ability to quantify the time necessary for the production of a commodity makes possible the regulation of the entire set of economic relations. But when the main element in the global productive cycle is the unforeseeable work of the mind, the unforeseeable work of language, when self-reproducing

information becomes the universal commodity, it is no longer possible to reduce the totality of exchanges and relations to an economic rule.

In any system as complex as the economy of a developed country, the statistically insignificant events, the events at the margin, are likely to be the decisive events, short range at least. By definition they can neither be anticipated nor prevented. Indeed, they cannot always be identified even after they have had their impact.²⁶

Economic science doesn't seem able to understand the current transition because it is founded on a quantitative and mechanistic paradigm that could comprehend and regulate industrial production, the physical manipulation of mechanical matter, but is unable to explain and regulate the process of immaterial production based on an activity that can't easily be reduced to quantitative measurements and the repetition of constants: mental activity.

Information and communication technologies are disrupting the social and economical mechanisms of the developed countries. The current indicators of traditional macroeconomics are becoming obsolete and of little significance; moreover, the place and function of economics itself as we still see it are put into question. The phenomenon of growth without job creation devalues a whole series of concepts.

This is how even the concept of productivity fails to resist the challenge raised by the new realities. With the new technologies, the majority of production costs are determined by research and equipment expenses that actually precede the productive process. Little by little, in digitalized and automated enterprises, production is no longer subjected to the variations concerning the quantity of operational factors. Marginal cost, marginal profits: these bases of neoclassical economic calculations have lost a good part of their meaning. The traditional elements of salary and price calculation are crumbling down.²⁷

Robin's analysis shows that economic categories can't explain the majority of the processes that are truly meaningful in our time, and the reason clearly consists in the fact that mental work is not quantifiable like the work performed by an industrial worker. Therefore, the determination of value – the keystone of classical economy both as a science and as daily economic practice – becomes aleatory and indefinable. In *Symbolic Exchange and Death*, Baudrillard wrote:

The reality principle corresponded to a certain stage of the law of value. Today the whole system is swamped by indeterminacy, and every reality is absorbed by the hyperreality of the code and simulation. The principle of simulation governs us now, rather than the outdated reality principle. Finalities have disappeared, the models generate us now. [...] Capital no longer belongs to the order of political economy: it operates with political economy as its simulated model.²⁸

With the digitalizing of production, the abstraction of capital makes a qualitative leap. Not only is production an abstract production of value, but the economic indicators are autonomous from the system of production, and are constituted as a synchronic, structural, self-referential, and autonomous system, independent from the real world. The increasingly financial nature of our economy means exactly this. The stock markets are the places where obsessions, psychological expectations, fears, play, and apocalyptic ideologies regulate the game.

Realist economies were governed by their goals, the naive goal of producing use value for the satisfaction of specific needs, or the subtler goal of valorization as the increase of invested capital. Now, instead, it is impossible to explain our economies on the basis of their goals, whether we identify them with the intentions of certain individuals or certain groups or with the goals of an entire society. The economy is governed by a code, not by its goals:

Finality is there in advance, inscribed in the code. We can see that nothing has changed – the order of goals has simply ceded its place to a molecular play, as the order of signifieds has yielded to the play of infinitesimal signifiers, reduced to their aleatory commutation.²⁹

The economy therefore appears as a hyper-reality, a simulated, double, and artificial world that cannot be translated in terms of real production.

The mental nature of today's economy is not only expressed by the technological transformation of the productive process, but by the global code in charge of interpreting the process constituting our entire world. Consequently, the science of economics can no longer explain the fundamental dynamics governing humanity's productive activities; nor can it explain their crisis. Economics has to be replaced by a global science whose characteristics and field of inquiry are still unknown: a science that would be able to study the processes of formation of Cyberspace, understood as the global network of signs-commodities.

In an interview published in 1993 by the Californian magazine *Wired*, Peter Drucker develops once again the theme of the inadequacy of economic categories associated with the digitalization of productive processes:

International economic theory is obsolete. The traditional factors of production – land, labor, and capital – are becoming restraints rather than driving forces. Knowledge is becoming the one critical factor of production. It has two incarnations: knowledge applied to existing processes, services, and products is productivity; knowledge applied to the new is innovation. [...] Knowledge has become the central, key resource that knows no geography. It underlies the most significant and unprecedented social phenomenon of this century.

No class in history has ever risen as fast as the blue-collar worker and no class has fallen as fast. All within less than a century.³⁰

Furthermore, Drucker remarks that the concept of intellectual property, which is the juridical concept that was at the basis of classical economy and of the capitalist system, no longer has any meaning in an age when the circulating commodity is information and the market is the info-sphere:

We have to rethink the whole concept of intellectual property, which was focused on the printed word. Perhaps within a few decades, the distinction between electronic transmissions and the printed word will have disappeared. The only solution may be a universal licensing system. Where you basically become a subscriber, and where it is taken for granted that everything that is published is reproduced. In other words, if you don't want everybody to know, don't talk about it.³¹

The system of property regarding the products of intellectual labor no longer works in the age of the reproducibility of information.

As a conclusion to these observations on the obsolescence of economics as a generalized interpretive code, I would like to quote André Gorz, who writes in his *Métamorphoses du travail*:

Discipline by means of money is a hetero-regulation that interrupts the communicational infrastructure ensuring the symbolic reproduction of the experiential world. This means that all the activities that transmit or reproduce cultural acquisitions, knowledge, taste, manners, language, mores [...], and that allow us to find our bearings in the world as givens, certitudes, values, and self-explanatory norms; all these activities cannot be regulated by money or by the state without causing serious pathologies in our world of experience.³²

Money (i.e. economics) and the State (i.e. politics) are no longer able to govern or to discipline the world of production, now that its center is no longer a de-brained force, a uniform and quantifiable time of manual work. That center is now occupied by mind flows, by the ethereal substance of intelligence, which eludes every measurement and cannot be subjected to any rule without inducing enormous pathologies and causing a truly maddening paralysis of cognition and affectivity.

Translated by Giuseppina Mecchia

Notes

1. Potere Operaio [Workers' Power] was a leftist group active in Northern and Central Italy from 1969 until its dissolution in 1973. Among its founders was Antonio "Toni" Negri, who was at the time professor of political philosophy at the University of Padova. The group was mainly composed of students, workers and intellectuals, who often came from different backgrounds. As long as it lasted, Potere Operaio was a site of lively, innovative political debate, where new interpretations both of the Marxist heritage and of larger anti-authoritarian struggles were furthered.
2. Franco Berardi is quoting from the Italian translation of "Produktion und Klassenkampf," a chapter of *Konstitution und Klassenkampf* (Frankfurt: Neue Kritik, 1971). This book hasn't been translated into English and the Italian translation is therefore my only reference. The German original of parts of this chapter is now available on the web at the following site: [www.krahlstudien.de/texte/produnklass.html]. I haven't been able, though, to locate the passages quoted by Bifo. (Translator's note.)
3. Claussen, Loewy, Negt, Riedemann, Introduction to: Hans Jürgen Krahl, *Costituzione e Lotta di Classe* (Milan: Jaca Books, 1978) 15.
4. Hans Jürgen Krahl, *Costituzione e lotta di classe* (357).
5. Hans Jürgen Krahl, *Costituzione e lotta di classe* (357).
6. Hans Jürgen Krahl, "Thesen zum allgemeinem Verhältnis von wissenschaftlicher Intelligenz und proletarischem Klassenbewusstsein." In: *Konstitution und Klassenkampf* (Frankfurt: Neue Kritik, 1971) 330-347. While I have used Bifo's own Italian translation as a basis for my own, I have checked and slightly modified all quotes coming from it against the German original as it currently appears on the following website: [www.krahlstudien.de/texte/intellprol.html]. (Translator's note.)
7. Hans Jürgen Krahl, "Thesen..." (367).
8. Herbert Marcuse, *One Dimensional Man. Studies in the Ideology of Advanced Industrial Societies* (Boston: Beacon Press, 1964) 86-87. (Translator's note: Marcuse is quoting Stanley Gerr, "Language and Science," *Philosophy of Science*, April 1942, 156.)
9. Marcuse 1964 (123).
10. Marcuse 1964 (133).
11. Marcuse 1964 (159).
12. Marcuse 1964 (159).
13. Paolo Virno, "Virtuosity and Revolution," translated by Ed Emery and made available on the Web on May 1 2004 on the following site: [www.makeworlds.org/node/view/34]. Bifo quotes from the Italian text, originally published in the journal *Luogo Comune* and then made available in *Mondanità* (Rome: manifestolibri, 1994). I have slightly altered Emery's translation. (Translator's note.)
14. Virno 2004 (2).
15. Virno 2004 (2).
16. Virno 2004 (4-5).
17. Jean Baudrillard, *Symbolic Exchange and Death*, trans. Iain Grant, intro by Mike Gane (London and Thousand Oaks, CA: Sage Publications, 1993) 51.
18. Virno 2004 (7).
19. I translate as "Net" the Italian "rete," which indicates both an earlier and a more comprehensive reality with respect to Internet or the Web. (Translator's note.)
20. Arthur Kroker and Robert Weinstein, *Data Trash* (New York: St. Martin Press, 1994) 7.
21. Kroker and Weinstein 1994 (7-8).
22. Kroker and Weinstein 1994 (23-24).
23. Kroker and Weinstein 1994 (65).

24. Kroker and Weinstein 1994 (89).
25. Peter Drucker, *The New Realities* (New York: Harper and Row, 1989) 156-157.
26. Drucker 1989 (166).
27. Jacques Robin, *Changer d'ère* (Paris: Seuil, 1989) 39.
28. Baudrillard (2).
29. Baudrillard (59).
30. Peter Drucker in "Post-Capitalist," an interview by Peter Schwarz published in *Wired*, July-August 1993. Now accessible on the following website: [www.wired.com/wired/archive/1.03/drucker_pr.html].
31. *Ibid.*
32. André Gorz, *Métamorphoses du travail. Quête du sens, critique de la raison économique.* (Paris : Galilée, 1988) 132.