



The Scientific-Philosophical Foundations **of 21st Century Socialism**

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Abstract*

The Time-Space-Motion paradigm of modern science and Dialectical Materialism; Lenin’s three sources and three components of Marxism; bicentennial, four-stage evolutionary logic of anti-capitalism leads to 21st Century Socialism; the advance towards complexity; the impact of modern science on Lenin’s three components of Marxism; the impact on dialectics and revolution-evolution; the impact on political economy and the cybernetic obsolescence of the market; the impact on class struggle and political democracy; is the bourgeois system in its terminal phase?; the mode of production of 21st Century Socialism.

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1. Dialectical Materialism and the Time-Space-Motion paradigm of modern science

The first modern scientific paradigm of societal history, comparable in scientific importance to the paradigms of Isaac Newton in physics and Charles Darwin in biological systems, was developed by Karl Marx and Friedrich Engels. Its epistemological-methodological underpinnings were defined in 19th Century philosophical language as Dialectical Materialism and, later on, as Dialectical Historical Materialism.

In his famous 1913 essay, “Three Sources and Three Component Parts of Marxism”, Vladimir I. Lenin defined its paradigmatic structure as “the best” that man produced in the nineteenth century, as represented by German philosophy, English political economy and French Socialism. He referred particularly to the application of dialectics, i.e., the doctrine of development in its “fullest, deepest and most comprehensive form”, to the cognition of human society; the development of Adam Smith’s and David Ricardo’s labor theory of value into the theory of surplus value, “the corner-stone of Marx’s economic theory”, and the lessons of French (Utopian) socialism and the struggles of social classes as the driving force of social evolution.

Since then, socialism has run its evolutionary course from “Utopian” socialism to Marx’ and Engel’s 19th Century *Scientific Socialism*, to 20th Century *Practical Socialism* and finally, developing into the new paradigm of 21st Century *Democratic Socialism (DS21)*. And so the question asked by Lenin has to be answered anew: what are the scientific-philosophical underpinnings of the Anticapitalist Project (DS21) today?

Translated into contemporary science language, Marx’s and Engels’ dialectical-historical materialist model is equivalent to the Time-Space-Motion paradigm that forms the epistemological-methodological base of all modern empirical sciences, since the 16th century (Galileo). In this sense, dialectics is, using Lenin’s definition, the most comprehensive 19th



century theory of motion and evolution. Development, be it judged as evolutionary, revolutionary or involutory, progressive or regressive, is the result of motion. Being motion the mode of existence of matter ---the soul of the universe, we could say--- it is therefore justified to structurally understand Marx/Engels' "dialectics" and "motion" as equivalent categories and, on a meta level, dialectics as the philosophical conceptualization of motion and change.

"Historical" is equivalent to "time" or, to cite a beautiful formulation of Newton, the "measure of duration by the means of motion". Time or history is a child (derivative) of matter and movement. "Materialism" can be understood, in terms of human cognition, as the realistic understanding of matter, that is, the extension and corporality of matter, including the regions between it. In this sense, the materialism of Marx and Engels is directly linked to the physical form of existence of matter, to space. At this ontological level, materialism is the assertion of the existence of the real world independent of the observer. As referred to human practice, as historical materialism, it meant for Marx the long term pre-eminence of economic conditions of life in the configuration of history, although, always understood in a dialectical interaction process with the three other basic human relations, the military, culture and the political, and with Nature; as expressed in Marx's superb dictum: "Das Sein bestimmt das Bewusstsein", Reality determines consciousness.

We can therefore conclude, that Dialectical Materialism coincides epistemologically with the paradigm of modern science that in contemporary lingua franca is known as Time-Space-Motion paradigm.

Of these three existential conditions of human existence, which simultaneously serve as the elementary cognitive framework of empirical scientific work (research), time is absolute in the sense that it can't be modified by humans. Although the classical Newton model of time has been theoretically modified by the four-dimensional Spacetime-paradigm of Einstein and Minkowski, from the standpoint of human activity and social transformation it continues to be true that all life on earth moves along a uni-directional arrow of time. In this sense time is the only absolute condition of our being.



Human individuals, groups or societies modify or abandon their spatial habitats and can even, to a certain extent, influence the motion (evolution) of reality. Time however is the uni-directional --from past via present to future--- absolute, not modifiable and irreproducible condition of human life. It is our most vital resource.

The implications of the absolute ontological condition of Time for the new civilization are transcendental. This can be illustrated by its influence on the three basic “software systems” guiding the transition struggles of 21st Century Socialism: the material ethics of life, the intellection of science and the constitution and self-determination of the citizen-subject through participatory democracy.

From a moral or vital point of view the (life-) times of people are equivalent, independent to that of any other, independent of its empirical characteristics like age, income, gender, ethnicity, productivity, nationality, etc. The hour of a banker, a politician, a judge is of the same moral value as the hour of a peasant, worker or unemployed person, since none of them is renewable. We only live once. Sixty minutes passed are sixty minutes along our journey towards death. Time’s arrow sends us on a one way journey. This basic moral equality of all constitutes the most elementary and inviolable ethical foundation of society. Thus the duty of socialist society and the socialist state to guarantee this basic right in all social relationships.

But our lives evolve not only in time but also in space. We are matter living a material moving. It is this second ontological condition of human existence ---less absolute, though co-conditioning all aspects of our existence--- that accounts for the fact that time as a moral condition and abstractly equal resource for all individuals (a human right), is not, by itself, sufficient for the philosophical-ethical foundation of a new, solidarity-based postcapitalist society. In order to advance from a moral imperative to an omnipresent fact of life, time has to express itself in the three dimensions that define our quality of life: the material conditions of our existence, the meaning of our lives (a sense of transcendence) and our self determination.

We are approaching a crossroads where the *ethical* dimension of a just and democratic society, the vital or moral value of time, meets the *factual* dimension of economic and social organization, the mode of production. Thus arises the decisive question for the theory and praxis of 21st



Century Socialism: How should a 21st Century post-capitalist society and state be organized to satisfy justice, democracy and a meaningful existence?

The answer is through the conscious interaction of material ethics, science and participatory democracy. These three dimensions of reality, subsystems for building the new society of 21st Century Socialism, are unified by time. Since material needs and the quality of life can only be satisfied through social labor, and since the economic values of goods are ultimately measured in time (labor value) (1), the *general ethic foundation* of 21st Century Socialism and its *practical economic organization*, coincide; both as the supreme moral condition of life and as the fundamental operating principle of the economy. Additionally, the working day, multiplied by productivity and the total labor reserves available to a society, determines the amount of wealth that can be mobilized in a social system.

Paraphrasing Lenin we can now say, on a general level, that the “three sources and constitutive parts” of 21st Century Socialism can be summed up as material life-ethics; scientific thought and self-determination through participatory democracy.

Several aspects have to be analyzed further:

1. the relationship between this general determination of 21st Century Socialism’s “genome” and the scientific socialism of Marx and Engels and Lenin’s practical Bolchevik socialism;
2. the progress of the time-space-motion paradigm towards complexity theory and the implications of this for Lenin’s three components of Marxism, that is, on dialectics, political economy and political superstructure (class struggle and democracy);
3. the question of the (terminal?) decay of the bourgeois system;
4. the specific properties of this latest development form of socialism (DS21);
5. the transition scenario.

In this essay we will address the first four topics.



(1) The value of any commodity, therefore, to the person who possesses it, and who means not to use or consume it himself, but to exchange it for other commodities, is equal to the quantity of labour which it enables him to purchase or command. Labour, therefore, is the real measure of the exchangeable value of all commodities. (Adam Smith, Wealth of Nations, Chapter 5)

2. Bicentennial, four-stage evolutionary logic leads to 21st Century Socialism

We have described the paradigm of 21st Century Socialism as being based on the ideas of time, space and motion used in science. Epistemologically it is equivalent to the 19th Century concept of Dialectical Historical Materialism, in that it analyses the complex interactions between homo sapiens, society and nature. It is guided by ethics that are supportive of life- and nature. It has the objective of transforming the current capitalist world system into a participatory democracy with a democratically planned and sustainable economy, based on the conscious use of labour values to achieve equivalence. It is now time to shed light on its genesis and evolution.

Four evolutionary stages of modern socialism can easily be discerned since the term was first published by the Paris typesetter Pierre Leroux in his essay “De l’ individualism et du socialism”, in 1834. Its formative, chaotic, extremely creative foundational stage takes place essentially in the industrially most advanced European countries, England, France and Germany, since the turn of the 18th Century. This stage is often referred to as utopian or early socialism. The term “utopian” should be discarded though, since this foundational period contributed an enormous wealth of experience both to practical class struggles and also a wealth of ideas about social transformation , which have turned out to be anything but utopian. In fact, several of the contributions of Leroux, Rousseau, Babeuf, Cabet, St. Simon, Fourier, Proudhon, Blanqui, Weitling and Owen became parts of the paradigm of Scientific Socialism, elaborated by Marx and Engels, and others still remain valid today.

The conceptual achievements of early socialism, often born through bloody experiences of class struggle, did indeed bear the characteristic marks of infancy. And without any doubt Marx and Engel’s work meant the transition of these ideas and experiences to a higher stage of development, to maturity. Scientific Socialism was indeed, as Lenin correctly said, the understanding and systematization of “the best” of available nineteenth-century knowledge. With the new paradigm, a synthesis of contemporary rational knowledge, Socialism had come of age.



Several decades after scientific socialism evolved into a mature dynamic model of the driving forces of human history, the advent of the Russian Revolution ---in what amounted to a phase change in the early socialist cognition system--- abruptly put the validity of the paradigm to a brutal empirical test. This occurred under terrible objective conditions, to be sure, but also under the guidance of the most brilliant Marxist revolutionary and “research coordinator” of his time, Vladimir I. Lenin.

Lenin opened the gates of history to Practical Socialism, later referred to as “actually existing socialism”, bolchevism or 20th Century Socialism. Rousseau, Babeuf, Proudhon were present in the model, with their condemnation of private property, St. Simon with his internationalism, Blanqui with the dictatorship of the proletariat and, of course, Marx and Engels with their brilliant synthesis of an anti-capitalist liberation project for mankind. Thus the third phase of contemporary socialist evolution began as a “field trial”, in which the bi-cephalous revolutionary socialist subject, Lenin and the Communist Party was unable to control the experimental conditions. Under these conditions, the defining properties of the new post-capitalist civilization and mode of production that came into being, were: state and public ownership of the means of production, a centrally planned non chrematistic economy, not based on labor value and without the principle of equivalence, and in the political sphere, the dictatorship of the proletariat, which under the Stalinist degeneration of Lenin’s applied Marxism came to mean unilateral party rule without participatory democracy.

When the grand social experiment of 20th Century Socialism collapsed, with achievements and partial failures, because the atrophy of the Marx/Engels paradigm through imperialist aggression and Stalinist involution didn’t permit adaptation to a new technological revolution and a changing world environment, the fourth and current phase of socialist evolution began: the Democratic Socialism of the 21st Century (DS21).

Among its distinctive features vis-à-vis 20th Century Socialism are that it is based on participatory democracy and a democratically planned labour-value based equivalence economy. Both features are possible today through the progress of science and technology. It also



reintegrates and stresses certain elements of the original formation period, like labour certificates (Weitling, Owen), and conceptualizes the necessary “expropriation of the expropriators” in a different way than in 20th Century Socialism.

3. The advancement of modern science towards complexity

The explosion of scientific knowledge since the formulation of the first paradigm of Scientific Socialism by Marx and Engels, and the determination of its “genome” (2) by Lenin, enable us to develop the original paradigm to a greater depth than was possible using 19th century knowledge. The relationship between the two paradigms, Marx Engels’ Scientific Socialism and 21st Century Socialism (21CS), is organic, in the sense, that the second one has emerged from the first one, very much like the model of modern physics emerged from Newton’s ground breaking synthesis. Albert Einstein and Max Planck are unthinkable without Newton and the same holds true for Marx/Engel’s as predecessors. 21st Century Socialism is the evolutionary synthesis of the best ideas and experiences of socialism’s development, and of course, of phylogenetics in general. It is, as all scientific knowledge, a creation *ex materia*, not an *ex nihil* invention of politicians or intellectuals and it is in line with rational standards of scientific analysis.

The advance of knowledge extends to the three key conditions of our existence: time, space and motion. But it is particularly in the interpretation of different types of motion or change that enormous epistemological progress has been made. We are now in a much better position to understand and calculate the complexity and implications of constantly moving matter on its diverse levels of organization, that is, the physical, the chemical, the biological and, a category of its own, the human neuronal complexity. In fact, we now know, that what accounts for the different levels of complexity in these ontological strata of matter, is the simplicity or complexity of their feed back mechanisms, with the most complex self-regulating systems being found on the biological level and in human social systems. And we also understand that change (evolution) appears on a scale defined by the interplay of the fundamental laws of nature with the operation of chance (random choice events). That allows us to leave simple, deterministic conceptions of reality, like, for example, the “new Soviet Man” and the *homo novo*, behind. The resulting methodological and epistemological impact has turned the philosophy of movement, dialectics, into a number of sciences of movement, which in mathematics (statistics, fractals, chaos),



complexity theory, cybernetics, physics, genetics and evolutionary theories, allow us to envision, measure and steer the development of phenomena in a way, which Marx, Engels and Lenin could only have dreamed of.

We now understand that the behavior and evolution of Complex Dynamic Systems or Complex Adaptive Systems (CAS), like man and society, can be described as a dynamic interaction of linear, non-linear, probabilistic and chaotic motions and behaviors. This new understanding affects all aspects of previous socialist conceptualizations of society and history. For example, the relationships between evolution and revolution, market, planning and property, strategic and tactical alliances and the properties of classless democracies can now be analyzed in a more comprehensive way than ever before.

However, the impact of the growing understanding of the behavior of matter on its different complexity levels is not limited to itself. It extends to the other dimensions of our existence: space and time. Movement is a property of matter and a better knowledge of this property permits better inferences about the state of matter, for example its basic wave and particle structures, which in turn enables us to use it to our advantage as in future quantum computers and nanotechnologies.

Increasing knowledge and engineering dominance of matter and motion have created the objective conditions necessary for the replacement of capitalism. The basic institutions of 21st Century Socialism, participatory democracy and equivalence economy, are not possible without modern Information Technology. In fact, the creation of an electronic *virtual space* on earth has added a new dimension to reality (civilization 2.0) which will be as important to the future global society as is the biosphere today.

The increasing synergy of biosphere and electronic sphere, of physical-biological and virtual habitat, has already broken down the spatial barriers of communication between the individuals across the world, potentially enabling their common social behavior and bonding, independent of geographical location. This new state of connectivity creates, as in the neural system, a qualitatively new collective mind, organization and species behavior. The overcoming of real spatial communicational are further enhanced by the parallel overcoming of real time barriers. In



principle, a collective mind and labor pool can operate globally. The technological conditions of civilization 2.0 create a totally new institutional environment in which the two decisive institutions of bourgeois civilization: the market and the plutocratic formal democracy, become victims of evolution. They become obsolete vis-à-vis the new cognition, planning and decision devices that science and technology have put at the disposal of mankind.

(2) The British scientist Richard Dawkins used the concept "meme" in order to introduce evolutionary principles in the understanding of the transfer and inheritance of cultural phenomena.

4. Impact of scientific advance on Lenin's three components of Marxism

4.1 Impact on dialectics (evolution, revolution)

There are several outstanding treatments on the epistemology and methodology of movement (dialectics) in socialism, among them Marx's prologue for the first edition of "Das Kapital", Engels' "Dialektik der Natur" and "Anti-Duehring", Lenin's "Materialism and Empirio-criticism", and Mao's "On Contradiction". (3) All of these works deal with the complexity of change (motion), but it is in Engels "Dialectics of Nature" and "Anti-Duehring" where we find the proposition to classify movements according to their level of complexity. The criterium used for defining complexity was the diversity of action a system could take. On a scale of simplicity-complexity the simplest movement would be the mechanical (physical), followed by the chemical and biological. "The investigation of the nature of motion had...to start from the lowest, simplest forms of this motion... Hence, in the historical evolution of the natural sciences we see how first of all the theory of simplest change of place, the mechanics of heavenly bodies and terrestrial masses, was developed; it was followed by the theory of molecular motion, physics, and immediately afterwards, almost alongside of it and in some places in advance of it, the science of the motion of atoms, chemistry. Only after these different branches of the knowledge of the forms of motion governing non-living nature had attained a high degree of development could the explanation of the processes of motion represented by the life process be successfully tackled... Hence, in investigating here the nature of motion, we are compelled to leave the organic forms of



motion out of account. We are compelled to restrict ourselves - in accordance with the state of science - to the forms of motion of non-living nature.” (4)

Engels’ reasoning about the complexity of systems by way of their freedom of independent movements, was brilliant, as was Diderot’s approach decades before. But both of them were limited, since the sciences of dialectics were still in their foundational phases. As an unavoidable consequence, a kind of “missing link” appeared in Marxist epistemological theory. The forms of motion of “non-living nature” had been researched. The “organic forms of motion” could not be understood yet due to the “state of science”. But the highest stage of motion, that of society, was analyzed and understood as the struggle of social classes in a dynamical process of evolution, characterized by reform and revolution.

With the progress of knowledge about the behavioral potentials and limits of complex adaptive systems this gap is closing. We can now understand the specific forms of motion of matter on the prebiological, biological and human-social levels, as well as the complex interactions among them. That helps us to avoid the traps of reductionism. All more complex systems contain the motions of the simpler ones, but their resulting system behavior can not be satisfactorily explained by these motions alone, since new qualities of change appear at every higher level of complexity. Thus, we are in a much better situation today to conceptualize the postcapitalist civilization, both in its phase of transition as with respect to its future institutional structures.

Since 21st Century Socialism is a system based on democratic planning, the capacity to adequately foresee future events and evolutionary trends in nature and society are of foremost importance. This is true not only on a technical and methodological level, but also on central aspects of power and political alliances, like in the relationship between evolution and revolution. The comprehension of phase changes or changes of state in physical and biological systems has enabled us to interpret this relationship with a much deeper understanding than before.

19th Century political thought tended to stress the elements of rupture and discontinuity that occur in a revolution. Revolution was a “qualitative leap” away from the status quo. For many it was an irreversible process on the arrow of time, unidirectional from past to present to future, from feudalism to capitalism to socialism. Modern science permits us to see revolution not so much as



a contradiction or exception to evolution, but as one of its “gateway events”, in which microscopic changes in the system accumulate until they become visible on a macroscopic level. Or, as Arno Peters once put it in a beautiful, though slightly metaphysical formulation: revolution is the ultima ratio of evolution. (5)

The 20th century saw the development of a number of new ways of thinking about processes and change that are relevant here. First was the concept of Markov processes in which a system can have multiple states with probabilities of transition between them. This allows us to conceptualize social changes as going in different directions at different times. Then in the last 30 years or so, the brilliant work of Milner and others led to the notion of process algebras, providing an overall conceptual framework for complex developing processes.

“Phase change” or “changes of state” in the behavior of a system, for example the behavior of electrons in a superconductor or the behavior of citizens in a state, obey the general laws of collective motion. They are not an exception to the behavior of matter, but an integral part of it. History sometimes generates evolutionary or revolutionary conditions which are beneficial for the genesis of new complex adaptive systems. This can happen through changes in the natural habitat (climate), through political changes or by means of technical innovations, as the fourth technological revolution we are experiencing now. But it also generates conditions for the maladaptation or extinction of these systems. From the disappearance of the Maya civilization to the collapse of 20th Century Socialism, the examples abound. The new sciences of dialectics give us the tools to avoid unnecessary defeats and involutions of the New Historical Project we are trying to implement.

3) Marx, “*Das Kapital*” (1867); Engels, “*Dialektik der Natur*” (1883) and *Anti-Duehring* (1878); Lenin, “*Materialism and Empirio-criticism*” (1913); Mao, “*On Contradiction*” (1937).

4) Friedrich Engels, *Dialectics of Nature*, 3. *Basic forms of Motion*.

5) Compare Heinz Dieterich, Raimundo Franco, *El fin del capitalismo global*. Editorial Nuestro Tiempo, México 1998.

4.2 Impact on political economy (dialectic of market and planning is reversed)

The central argument of the neoliberal founding fathers, Ludwig von Mises y Friedrich von Hayek against a planned economy and the Soviet Revolution was, that the humanistic attempt of



Lenin and his party to generate social justice through collective planning of the economy, was destined to fail for reasons of complexity. No central planning authority would be able to control all parameters which are relevant for the efficient functioning of a national economy. And with the nationalization of private property, the bolsheviks would destroy the decisive cybernetic element of the system, the market price. The efficient allocation of scarce resources and their optimization should therefore better be left in the “invisible hand” of the market, an institution perfected through thousands of years of evolution and best suited to provide the highest degree of material well being of the citizens.

The market is, indeed, from its physical origins in the Greek Agora to its virtual reincarnation as e-Bay and Amazon, the original institution for the free exchange of merchandise and services. It has, undoubtedly, thousands of years of evolution behind it, in which it developed from a local space of occasional barter via the mercantile and monetary clearing systems of the modern Nation state to the current world market that dominates the economic affairs of our species. And finally, it is an interactive feedback system that coordinates billions of economic transactions through profit oriented market prices in a sophisticated cybernetic system.

Under certain circumstances the market of a modern capitalist chrematistic system can be surprisingly effective in coordinating these transactions. Some of these conditions are that the market structures are non-monopolistic, that there is sufficient buying power, a professional working class and an efficient state which guarantees the functionally necessary framework for the political economy. To the extent, that these conditions are *not* met, for example, in the case of public goods like safe working environments or secure retirement conditions; or when the free formation of prices is hampered by monopoly or administrative prices, the market loses its feedback capacity and becomes inefficient and a pseudomarket.

The market is, of course, much more than a cross section of exchange. It is the institutional economic environment in which the dominant class monetarizes the surplus value created in the production process, turning it into profit. This process is shaped by private property relations, which regulate the economic sphere in very much the same way the political constitution regulates the dynamics of political governance. The constitutional right of lawful exploitation of



the workers through private means of production than becomes operational through the market price.

Intrinsically linked to this unholy trinity of private property, price determination and profit is the political environment of bourgeois parliamentarism and the plutocratic parliamentary government. Market, private property, plutocratic parliamentary government, dominant class and the class state are the essence of bourgeois civilisation and form, as such, an indivisible unity.

From the point of view of the bourgeois power structure and ideology, „the market“ nowadays is nothing more than a linguistic code for a monopoly of economic decision making by the rentier class. This monopoly fulfills three functions in sustaining bourgeois civilisation: the asymmetric accumulation of capital, the decisive influence of the plutocracy on political decision making and the cybernetic regulation of the most important economic system parameters, like the assignment of quotas of social labor and of the social surplus.

It is this last function that has been used by neoliberal economists since Ludwig von Mises as the principal argument against a democratic economic planning that does not depend on private property and elite planning. It is, however, an argument that has become obsolete due to the development of the interactive electronic cybersphere. Modern information technology (IT) increasingly inverts the relationship of functional obsolescence between social planning and the market. What is ever more obsolete is not the dialectic of social planning, but the dialectic of the „invisible hand“ market planning mechanism.

The basic deficiency of the complex dynamic systems we call markets consists in that their evolution tends to create asymmetric situations in the system, similar to what happens with the evolutionary logic of many natural systems. The description and analysis of these natural systems is often done with the recourse to the Second Law of Thermodynamics and its phenomenon of entropy. Nowadays, this reasoning is also applied to the behaviour of the market. But there is an important caveat to be made in as far as the market functions as a subsystem of a human social context. The fact, that the homo sapiens is its basic element, confers a specific property to its feedback system, that does not exist on the level of prehuman biotic or physical matter.



The market as a self regulating system suffers from the fact that its mechanisms and reaction times of negative feedback, that is the correction of dysfunctions in the system behavior, are so destructive and slow, that they endanger the stability and existence of the overall sociopolitical system. It therefore requires the constant intervention of the class based state, either, in order to stabilize it, or to revolutionize it.

The market is, as the neoliberals correctly say a product of social human evolution. But it is a product that developed “behind the back of the people” (Marx) and is therefore blind vis-à-vis the needs, anxieties and necessities of its basic functional units: human beings. In this sense it is a quasi-natural cybernetic system, the positive or entropic feedback mechanisms of which are rather comparable to those of natural systems, than to the feedback mechanisms of human systems, deliberately and sensibly developed for the satisfaction of the people. This quasi natural logic of market evolution explains its extreme brutality vis-à-vis human lives and destinies. The following example illustrates the problem.

If a forest is overcome by a plague and its mechanisms of negative feedback are incapable of destroying the plague, the trees will die and dry out. Consequently they become more inflammable and sooner or later a forest fire will destroy the plague and the system (forest). The system will regenerate over time or become extinct. Which of the two results occurs is irrelevant at any of the three basic scales of the universe, micro, meso and macro: for the affected individuals, since they are objects; for the overarching system, the planet’s biosphere, since the scale of the event is local and much less for the universe.

This scenario is qualitatively different in a human society, because its individuals are not objects (trees), but subject-objects (homo sapiens), which will not passively accept the destruction of their existence by the barbarism of the market. They will not put up with being a passive community of victims, but rather try to constitute a community of resistance, that actively confronts the institution that destroys them; through strikes, protests and even armed resistance. This subject condition of the human being constitutes the source of all reforms and revolutions.

The market, with its natural “darwinistic” behavior, the iron will of exploitation by its dominant classes and the brutal repressive nature of its state apparatus has become a maladaptive complex



system, surpassed by evolution and condemned to gradual extinction. Thus arises the central question of the Democratic Socialism of the 21st Century: can the market mechanism be replaced by a different cybernetic system, which is similarly effective in the coordination of economic transactions, but more democratic and more humane? The answer is clearly yes.

And let Ludwig von Mises and Friedrich von Hayek turn in their graves, but there is an additional fine irony of history. The information technology and scientific knowledge we have today to beat the “invisible hand” at its own coordination game, has partially been produced under the regime of bourgeois chrematistic. The bourgeois regime is its own undertaker that has enabled us to substitute its deficient cybernetic mechanism with a planning system more efficient than the market. And the same is true for the evolutionary logic that leads us to participative democracy.

4.3 Impact on class struggle (participatory (democracy))

In the evolutionary logic of human social development, democracy can be understood as a characteristic or property of Complex Dynamic Human Systems (CDHS). This property can be measured on three dimensions, social, formal and participative. The measurements on these scales reveal the degree of influence of the citizens on the public affairs that determine their quality of life. That is to say, it sheds light on the degree of self determination of the basic social units of the system (the individuals) versus the external determination by collective power structures, like the state, the church, the unions or political parties.

Complex Dynamic Human Systems (CDHS) and their properties underlie the influence of the general laws of evolution. The genesis and evolution of democracy within the human species can therefore be understood as a mechanism of adaptation of the political guidance system to the functional necessities of the system and its interaction with the environment. The property “democracy” enhances the probability of survival and reproduction of the system through increased adaptive capacities. That is its *raison d'être*.

Under this evolutionary system perspective the appearance of the modern European states in the 15th Century and the modern bourgeois democracies in the 17th and 18th Century are not random phenomena, but *necessary* adaptations to its increasingly complex internal system components,



such as the productive forces, demographic density, urbanization, development in trade, new means of communication (Gutenberg) and the evolution of the social class structure, and a growing interaction with their natural and political habitats.

The transition from feudalism to capitalism in Europe is an example of this evolutionary legality (Gesetzmaessigkeit). The formal control, executive and guidance structures of feudalism were quite simple. The feudal landlord dominated and organized his almost autarchic socioeconomic microcosm (feudo) in a vertical form, seconded by the reactionary thought control of the clergy and the threat of draconian punishment by the sword. This simple exploitation, guidance and domination system worked in the wide rural spaces of feudalism, but was ill suited to maintain macrosocial coherence and stability in the ever increasing plurality of social, economical and political relations of the nascent bourgeois system. It is in this context that modern representative democracy, based on political parties, parliament, periodic elections and division of power, emerges upon the historical scene, as an expression of functional necessities of capitalist organization, coherence and information feedback. Being the child of capitalism bourgeois democracy is destined to disappear with the extinction of capitalism. That moment in time is defined by the increasing diversity and complexity of society that can no longer be adequately represented by the class-barriers to general access and decision making power of the bourgeois superstructure. It has to evolve towards a participatory democracy, because the increasing number of people and increasing global integration on all levels, is a qualitative jump in system complexity that can only be managed with a stronger interaction between the basic economic and social structure and its political superstructure. The transformational effect on the current system of political governance, formal bourgeois democracy, will be similarly drastic and profound than was the transition from feudalism to bourgeois society.

The functional necessity of this type of democracy for a modern capitalist society, documented by many important social scientists, can also be understood by contemporary cybernetic control theory. W.R. Ashby, one of the founding fathers of cybernetics, has explained this trend in his famous "law of requisite variety" which establishes a necessary positive correlation between the variety of elements in a system and the variety of elements in its control system: "Variety absorbs variety, defines the minimum number of states necessary for a controller to control a



system of a given number of states." Applied to our argument, it refers to the interaction between the capitalist economic base and the bourgeois political superstructure. The controlling instance of a system must dispose of a sufficient number of actions in order to guarantee adequate system control, in the event of perturbations. Since the potential number of perturbations in a system is basically unlimited, it is always convenient to maximize its internal diversity in order to be optimally prepared for any foreseeable or unforeseeable contingency.

In other words, a controlling instance can only control or model a system if it has enough internal variety to represent the system as a whole. For example, if the system is binary with only two alternatives, the control system needs to be able to represent at least two possibilities and, therefore, one distinction. The quantity of variety that the modeling and control system has, defines the upper limit for the quantity of variety, that can be controlled or modeled.

In the language of dialectical materialism we can say, that the future participative democracy of 21st Century Socialism constitutes the negation of a negation that elevates a two thousand year long development cycle of democracy in class societies to a new level. The Greek democracy was participatory, but not universal. Women, forced laborers and slaves did not have political rights. The more recent bourgeois democracy was universal, but not participatory. The new socialist participatory democracy will have the two necessary properties: participatory and universal.

To sum up: Democracy is not only a better and morally superior form of political organization of the species, compared to all other political systems in the four known historical class societies (slavery, feudalism, state centralized agrarian exploitation and capitalism), but at the same time, in its participatory form, it is the functionally necessary political organization for the post-chrematistic, post-capitalistic future of mankind. Material life ethics and practical functional system necessities coincide once again in the New Historical Project of 21st Century Socialism.

5. But is the bourgeois system in its terminal stage?

When the historical viability or life cycle of a macro-social system, like slavery, feudalism, Stalin's socialism or contemporary capitalism, comes to an end, then the potentials for its



qualitative transformation come into being, either through implosion (Soviet Union), internal evolution or external destruction from its global environment.

For conscious human direction of or, at least, influence on these different scenarios of development, it is important to make a correct diagnosis of which evolutionary phase the system is in. The quality of this analysis of the transition phase of the system, together with the subject's praxis, determines whether a transformational subject acts as a heroic or a comic figure.

A judgement on the current transitional phase of the bourgeois system's life cycle can be elaborated with the help of system theories, statistics and the evolutionary logic of human societies. On the economic level we can say that the capitalist mode of production reaches its terminal phase when the overaccumulation of capital and diminishing labor reserves reach a critical point. Several calculations indicate that world capitalism, with the exception of Africa, will reach this situation about 2040.

On a more general system level, the necessary and sufficient conditions for the qualitative transition of a macro-social civilizatory system are given, when a) the disfunctionality of its central subsystems, that is its basic institutions, calls into question the reproduction of the system as a whole, and b) when new constitutive structures and subsystems of the new civilization have developed to a certain degree within the old system.

If we apply both criteria to contemporary capitalism we see that they are fully met. None of the four decisive subsystems of bourgeois society is capable of resolving the great problems of mankind: neither the chrematistic national market economies, nor the representative parliamentary democracies, nor the plutocratic states or the liberal bourgeoisie. Instead of being sources of system stability and mechanisms of conflict regulation, they increasingly become zones of conflict of social antagonisms, which the ruling elites can not adequately cope with within the framework of capitalist nation states.

Those contradictions can only be solved by a phase change, by a qualitative leap into a post-capitalist civilization. They find their resolution in the post-chrematistic phase through five new, central subsystems, which are already discernible in the Ancien Régime: 1. democratically



planned labor-value and resource-based equivalence economy, operating with monetary, physical and time Input-Output Tables and the equivalence principle operating in appropriation, distribution and exchange; 2. A participatory-representative democracy in the four basic human relationships (economy, culture, politics, military affairs), operating in the allocation of public power through electoral, plebiscitarian and random choice mechanisms; 3. the multi-ethnic and multinational democratic state as *volonté générale* with adequate protection of the minorities; 4. the critical-responsible subject, that is, the self-conscious and self-determined rational-ethical-aesthetic citizen, and 5. the material life ethic that protects all world citizens and the planet alike.

6. Specific properties of 21st Century Socialism

Compared to 20th Century Socialism, the new Socialism of the 21st Century is characterized by two distinct properties: participatory democracy and a democratically planned equivalence economy. A short description of both will suffice for this essay.

The participatory democracy of the new civilization will be comprehensive in the sense that it will extend to the four basic social relationships of human existence: economical, political, cultural and military. It will operate through a combination of representative, plebiscitarian and random choice mechanisms in these basic relationships. Political parties as we know them today are specific bourgeois instruments of the organization of public power and will disappear with the disappearance of the capitalist mode of production and bourgeois superstructure. The same is true for professional politicians and the current form of parliamentarism and the media structure.

The new mode of production will be *democratically* planned, not by a small elite as in the historic socialist states or in the current capitalist states. The democratization of the planning and distribution process is a fundamental and necessary objective of the new socialism. Planning by itself is not socialism. Only if democratic planning is combined with the equivalence principle can the market economy successfully be transformed into a post-capitalist economy. In order to achieve this aim, the organization of the economy will not be based on market prices but on labor values, that is, the time inputs necessary to generate products and services. All participants in the value-producing process have the full rights to the value they created, except the necessary social funds (education, defense, etc.), which will be decided by plebiscite. The *formal* statization of the



means of production is not necessary, since the system put in place guarantees that they can not be used to exploit the workers and to produce a surplus value for private appropriation. This happens through a double mechanism: the eventual formal owner loses the de facto power of economic planning, since the democratically elaborated plan determines the type and volume of production, while the equivalence principle determines prices and salaries.

It is the combination of a democratically planned economy with the theory of labor value and the equivalence principle (Arno Peters) that establishes a mode of production that is qualitatively different to the chrematistic capitalist market economy. In the final phase of 21st Century Socialism, the salary of any worker, independent of age, gender, etc., will be directly proportional to the value created, that is the labor time dedicated to the economic endeavors, including those which are necessary in the household (child rearing etc.). Prices also correspond directly to its (labor-) values and thus “the economic circuit is complete in terms of values, not prices. The exploitation of humans by humans is over. Every human receives the full value that he incorporated into products or services.” (A. Peters). (*)

(*) Arno Peters, *Computer-Sozialismus*, Gespräche mit Konrad Zuse. Neues Leben Verlag, Berlin 2000, p. 42.