

# Some Aspects of Structural Change in Marx's Analysis

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“If we have no business with the construction of the future or with organizing it for all time there can still be no doubt about the task confronting us at present: the *ruthless criticism of the existing order*, ruthless in that it will shrink neither from its own discoveries nor from conflict with the powers that be.”

Marx to Ruge, September 1843

## Introduction

The aim of this paper is to point out some crucial features of structural change in Marx's *Capital* that are framed in an evolutionary perspective. The evolutionary aspects of Marx's analysis of competition and technical change are acknowledged in literature. However, much remains to be said about how Marx identifies the drivers of structural change in the capitalistic system, its evolution and ultimately its demise.

Marx's analysis of structural change, characterised by the increasing dimension of the capital, with the attendant increasing complexity of the production process, can be compared to the well documented evolutionary trend in phylogenesis towards increase in body mass and cell types. According to Marx, in the process of capital accumulation, the modes of production evolve, from less adequate to more adequate in the *vital* performance of the *valorisation of capital*. This is thanks to the change in the functions of labour-power, occurring by means of an ever-increasing division of labour, supported by technical progress. The demotion of labour to simple labour, i.e. labour alienation, related to the process of ever-restricting the tasks that each labourer is required to perform, is the *force driving* the evolution of capitalism. An analogy can therefore be proposed with the evolutionary biological trend of an increase in the number of specialized types (cells, tissues, organs) each doing very little, very well. A biological analogy can also be proposed between the necessity for an increase in the capital dimensions, as stated by Marx, and a certain degree of “ineluctability” present in the process of phylogenesis toward increasing complexity.

Marx's precognition of the transformation of the capitalistic society into a socialist one is the result of an evolutionary reasoning into which, however, Marx introduces a strong political element. As a matter of fact, evolutionary biology teaches us that the more specialised an

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individual, the better he is adapted to a given (relatively stable) environment. However, in cases of abrupt change in the environment, while the “generalists” might survive, the “specialists” are more likely to perish. It can be shown that this is the reasoning which Marx adopts. Marx treats the capitalistic society like the species of Dinosaurs which became extinct as a consequence of a meteorite fall. He believes that, *if* a disturbance occurs in the relative stability of the environment, changing the private property regime into a social property regime, capitalistic society is bound to become extinct, while the latent genetic variability, linked to the socialised worker (the scission between every production function and the ownership of capital), will be selected to give birth to a new form of society.

Marx’s view concerning the advent of socialism can therefore be viewed as a logical prediction of an analysis “cum extrapolation” of the present grounded in evolutionary perspective. The non teleological character of mutation and environmental changes is not strictly equivalent to their complete unpredictability, whereas the naturalist today does not believe that evolution follows a preordained path, this very naturalist endeavours and often succeeds in making prediction as to the outcomes of certain environmental and more broadly ecological trends. Thus while nothing in Marx’s method of analysis is inherently capable of anticipating the future end state of human development, thanks to his method and his extraordinary insight, he is able to anticipate a tremendous *possible* next step of human development. It is Marx the *visionary*, and not the *analyst*, who affirms that socialism is the *necessary* achievement of history.

This paper develops the above reasoning as follows: the first section refers to secondary literature on Marx, and presents those traits of his analysis which make him an acknowledged predecessor of the evolutionary approach; the second section presents the evolutionary aspects of Marx’s treatment of structural change in *Capital*; the third section deals with the possible evolutionary interpretation of Marx’s foreseen end of capitalism. The fourth section proposes some conclusions.

### **On the analogies between Marx’s analysis and the evolutionary approach.**

Many theorists acknowledge the continuity between Marx’s analysis and the evolutionary approach. Nelson and Winter (1982) present Marx as one of their forerunners because, according to them, the views of both the capitalistic mode of production and the distribution of firm dimensions and extra profits can be conceived in terms of evolutionary systems<sup>1</sup> (See also Dosi and Nelson (1994)

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<sup>1</sup> Though it is worth stressing that they do not say a lot on this issue.

Duménil and Lévi (1999.a) envisage the following evolutionary traits in Marx's analysis of competition and prices: -the economy is considered in disequilibrium; -capital accumulation is due to the profits reinvested in the most profitable sector and is a mechanism ruled by the mobility of capital and the action of decentralised agents who react to disequilibrium, and whose behaviour is characterised by bounded rationality. Moreover, Duménil and Lévi argue that the immanent laws of capitalistic production, to which Marx refers, are macroeconomic regularities stemming from microeconomic behaviours. They are to be considered the resultants of processes entailing the actions and reactions of agents.<sup>2</sup> Marx looks for "operational processes", such as that of competition, which leads to uniformity in the rate of profit, or that of the individual search for extra-profit, which causes a fall in the rate of profit. Duménil and Lévi argue that though the concept of immanent law could be shocking for an evolutionist, one must never separate it from the notion of "operational process". In this way they seem to reply to Clark and Juma (1987) and Hodgson (1994) who compare Marx's system to Newton's cosmology where social laws prevail over actions of individuals.

Clark and Juma (1988) observe that, in Marx's analysis, the socio-economic evolution from one method of production to another is caused by the resolution of internal conflicts resulting in new syntheses (a residue of Hegel's triadic schema). Clark and Juma argue that he employs a Darwinian concept of technical progress: - technology evolves from rudimentary designs to more sophisticated manufacturing structures; -there is a reciprocal influence between technology and environment; - each individual plays a small part within the system of evolution; -Marx's vision of technical progress is comparable to the co-evolution of species and to their reciprocal alteration. Simple instruments are adapted to the particular needs of specific workers. Clark and Juma suggest that technical progress stems from the division of labour: the exigency to improve and differentiate the instruments of production results from this division; they refer to the passage of Marx's *Capital* where he quotes Darwin's law of variations. Also Ricoy (1998, 2003) shares Clark and Juma's ideas on the evolutionary aspects of technical progress in Marx: the crucial role of learning in production, envisaged as a problem-solving activity; the importance of the development of science, which Marx considers as partly dependent on those problems (on this issue see also Giammanco, 2003); path-dependency<sup>3</sup>. Ricoy, however, suggests the existence of a reciprocal influence, in the

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<sup>2</sup> Duménil and Lévi, p.13, argue that in the formation of the prices of production, the operational process which is the gravitation of profit rates around an identical rate of profit, does not leave any trace of its functioning, and the prices of production are the result of the technique available and of the rate of profit. On the microeconomic behaviours explaining the tendency of the profit rate to fall in Chapter 15, Volume III, of *Capital*, see Duménil and Lévi (1999.b). There is a close analogy between this view and the biological evolutionist's "orthodox" school that envisages macro-evolution as the cumulative results of micro-evolutionary events.

<sup>3</sup> The importance of path dependency in Marx's analysis is also stressed by Duménil and Lévi (1999.a), p.13, who propose as examples of it the determination of the rate of interest, of the rate of wages and of the length of the working

Manufacture period, between division of labour and technical progress: not only does division of labour generate a variation in the tools of production, but every variation of such instruments engenders a change in the organisation of labour. This view is related to that of Clark and Juma, who argue that people who ignore the feedback between technology and social change consider Marx as a technological determinist.

In an earlier study of the relation between competition and technical progress in Marx's analysis, I have considered technical progress as a powerful tool for capital accumulation and focused on the role of the capitalist/innovator whose action is driven by the need to survive in the fierce struggle among capitals, which characterises the process of centralisation. The capitalist/innovator has a major role in inventing that diversity, analogous of a beneficial genetic mutation, which will make his firm the fittest one. As in evolutionary literature, also in Marx's analysis technical progress can be compared with the introduction of profitable mutations, which give an advantage to the firm carrying the modified gene in the struggle for survival.

Although I am fully aware that structural change in Marx's vision is intermingled with endogenous technical progress, generated within the competitive process (Cf. *Wage Labour and Capital*, 5 and C, I, 12, pp. 299-304)<sup>4</sup>, I do not tackle these issues here. What I have said in this section about the evolutionary aspects of Marx's treatment of competition and technical progress is always in the background of the argument that I am going to propose. As in Marx's analysis, as suggested by Ricoy (2003), the organisation of production depends on the nature of capital, i.e. on the means of production.

### **Evolutionary Aspects of Structural Change in Marx's *Capital***

The development of capitalism, being an historical process, is by definition evolutionary. An outstanding trait of Marx's analysis of structural change is therefore not the lucidity with which he recognises and describes it as such, but the identification of the drivers of the evolution of capitalism. A close equivalent to Darwin's evolutionary theory. In Schumpeter's words: "Economists always have either themselves done work in economic history or else used the historical work of others. But the facts of economic history were assigned to a separate compartment. They entered theory, if at all merely in the role of illustrations, or possibly of verifications of results. They mixed with it only mechanically. Now Marx's mixture is a chemical one; that is to say, he introduced them into the very argument that produces results. He was the first

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day, all of which result from struggles between different social classes or groups, in a political and economic contest inherited from the past.

<sup>4</sup> In what follows I will refer to the passages from Marx's *Capital* as: C, Roman number, Arabic number. The Roman number indicates the Volume, and the Arabic Number the Chapter.

economist of top rank to see and to teach systematically how economic theory may be turned into historical analysis and how the historical narrative may be turned into an *histoire raisonnée*.”(Schumpeter 1950, p.44)

In what follows I will concentrate on the aspects of structural change in Marx’s analysis that are related to the growing concentration of capital and its consequences for division of labour engendering the collective worker. I propose an analogy between the Darwinian concept of natural selection, leading to an ever higher level of specialisation/complexity in the biological world, and the selection of different modes of production based on their fitness in the process of the ever-expanding reproduction of capital, for which an ever-increasing absorption of surplus value is necessary.

Marx’s analysis of structural change is characterised by the increasing dimension of capital of the production process, *related* to and *allowing* the ever-narrowing of the tasks that each labourer is required to perform, which starts with cooperation. The abasement of labour to simple labour, i.e. labour alienation, is the *force driving* the evolution of capitalism. The biological analogue of the increasing dimension of capital can be found in the increased body size allowing, in turn, increased specialization and thus complexity.

In Chapter 11, Part III, Volume I, of *Capital*, Marx analyses the direct relation between the mass of surplus value and the dimension of the anticipated variable capital, the part of capital invested in labour-power, given the rate of surplus value and the value of labour.<sup>5</sup> According to Marx, a sum of money, or value, in order to be transformed into capital must have a minimum dimension. A prerequisite of the transformation of an artisan into a capitalist is the employment, by means of the same capital, of a sufficient number of labourers, from whom to obtain a mass of surplus value which permits him to maintain himself without working and to become a capitalist: variable capital is the source of surplus value. Marx argues that in the capitalistic mode of production it is not sufficient to produce commodities: it is necessary to produce surplus value (C, I, 16, p. 477).

The importance of the increasing dimension of capital can also be traced back in Chapters 23-24, Part VII, Volume I of *Capital*, where Marx analyses the capital accumulation process, through which the capitalist transforms surplus value into capital, permitting not only to reproduce the system but also to expand it. As far as simple reproduction is concerned, Marx argues that the mere continuity of the process of production transforms every capital, even if originally acquired by individual effort, into accumulated capital, which is the unpaid labour of other individuals. (C, I, 23, p. 535). In order to transform an amount of money into capital it is necessary, first, to convert it into

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<sup>5</sup> Identified by Marx, respectively, with the exploitation rate and the part of the working day required to reproduce labour.

means of production and labour, and then to convert those means of production into commodities, which, apart from the capital originally advanced in their production, also contain a surplus value. (C, I, 23, p. 529). Dealing with extended reproduction, Marx illustrates the accumulation process by analysing how surplus value is transformed into capital. He then stresses that the development of the capitalistic method of production requires to ever-increase the amount of capital invested in a specific activity. Marx refers to the coercive laws of competition, which make compulsory the expansion of the single capital, in order to make it survive by means of continuous accumulation. (See C, I, 24, p.555 and also C, I, 10, p.256-257). A prerequisite of the creation of surplus is the application of the law of commodity-exchange to labour; this alienates labour by dissolving the relation between workman and means of production.<sup>6</sup> Marx lucidly recognises the growing dimensions of capital as an important requisite in the evolution of capitalism. It is only thanks to the growing mass of capital under the control of the same capitalist that an ever-increasing exploitation of labour is possible. A strong analogy exists with the evolutionary mechanism explaining the emergence of the more specialised forms of life. The founder bacterium (a prokaryote) of the evolutionary line of eukaryotes is a very simple organism, anaerobic, auxotrophic with no nuclear wall. *The first change* in the evolutionary path from a prokaryotic to a eukaryotic cell *is the slow but continuous increase in the cell dimensions*, and the related development of an internal membrane (including the nuclear membrane), which has produced several circumvolutions around a more and more twisted body cell. The following crucial event is the sporadic *formation of intra-cell vesicles, which develop specific functions*, in order to perform exchanges with the external environment. The *separation of these functions* evolves in the emergence of parts of the endoplasmic reticulum. While some simpler organisms are compelled to die when the environment dramatically changes, because of an ever-increasing production of oxygen, the uni-cellular eukaryotic organism becomes able to survive by gaining complexity.

What Marx argues in his analysis of the accumulation process is strongly connected to the relation between collective labour and capital dimension as stated in Chapter 13, Volume I of *Capital*, where he writes: “We now see that a certain minimum amount (of capital) is a necessary condition for the conversion of numerous isolated and independent processes into one combined social process”. (C, I, 13, p. 312).

In Marx’s analysis the development and the full affirmation of capitalism is based on the selection, within each firm, of the best mode of production to reap an increasing mass of surplus value. The level of appropriation of surplus value therefore reflects the level of adaptation of each mode of production. This progressively boosts the process of demotion of labour to simple labour

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<sup>6</sup> In Chapter 10, Part III, Volume I, of *Capital*, Marx deals with the modification of the restrictions to working hours, aiming at reaping an ever-growing absolute surplus value.

by means of an ever-increasing capital. The process can be compared with the evolutionary transition from a unicellular eukaryotic organism, able to perform all its vital functions, to a pluricellular eukaryotic organism, which gains complexity while each individual cell becomes simpler and apter to perform only the task for which it is specialised.

Protists show the amazing level of complexity which a single cell can reach within the eukaryotic organisational structure; however, they underline the intrinsic limit of the unicellular structure, which compels a single cell to accomplish all its vital functions. The “authentic” eukaryotic innovation occurs when some protists discover the advantages of associating in pluricellular organisms so as to assign different functional tasks to different typologies of specialised cells.

The same evolutionary pattern can be traced in Marx’s analysis of the birth and establishment of the capitalistic mode of production and of the progressive affirmation of the combined worker presented in Chapter 13 (Cooperation), Chapter 14 (Division of Labour and Manufacture), and Chapter 15 (Machines and Modern Industry) of Volume I of *Capital*. These chapters all belong to Part IV, which Marx devotes to the Production of Relative Surplus Value. Chapters 13 and 14 deal with the emergence of capitalistic production, and Chapter 15 analyses the transition from Manufacture to Modern Industry in which capitalistic production is fully affirmed.

The subordination of labour to capital starts with Cooperation, a mode of production characterised by the simultaneous employment of different workers; Marx distinguishes between simple cooperation, and a more advanced type of cooperation. In simple cooperation the capital pays several workers to accomplish identical or almost identical tasks. The productivity of the work in cooperation goes farther than the simple sum of the individual productivities; similarly even primitive forms of biological colonialism, with minimal inter-individual variability (clones) achieve performances that would not be available to the isolated individual.

Marx describes simple cooperation as follows: “When numerous labourers work together side by side, whether in one and the same process, or in different but connected processes, they are said to cooperate, or to work in cooperation. Just as the offensive power of a squadron of cavalry, or the defensive power of a regiment of infantry, is essentially different from the sum of the offensive or defensive powers of the individual cavalry or infantry soldiers taken separately, so the total sum of the mechanical forces exerted by isolated workmen differs from the social force that is developed, when many hands take part simultaneously in one and the same undivided operation, such as raising a heavy weight, turning a winch, or removing an obstacle. In such cases the effect of the combined labour could either not be produced at all by isolated individual labour, or it could only be produced by a great expenditure of time, or on a very dwarfed scale. Not only have we here

an increase in the productive power of the individual, by means of cooperation, but the creation of a new power, namely, the collective power of masses”. (C, I, 13, pp. 308-309). And Marx further writes: “We see mighty coral reefs rising from the depths of the ocean into island and firm land, yet each individual depositary is puny, weak, and contemptible”. (C, I, 13, p. 316). According to Marx, this first and simpler form of cooperation is to be found in the medieval guild system, where the master employs only journeymen related to his handicraft; if a form of specialisation is required, this engenders the scission of guilds into sub-guilds and the creation of new ones.

The more advanced type of cooperation, which characterises Manufacture, is based on the division of labour by means of which a reciprocal dependence is created among different jobs. Division of labour in Manufacture generates the combined worker, ensuing from the cooperation of partial workers, to each of whom is assigned a single easy job that he can perfect with practice. Cooperation reduces the use of constant capital and creates synergies among workmen, who are collectively considered by Marx as a single entity: the ‘combined worker’. The biological analogy with the rise of Marx’s collective worker, engendered by division of labour in Manufacture and boosted in Modern Industry, is the birth of the multicellular organism, based on cellular differentiation, consisting in the specialisation in different directions of cells deriving from the same parental cell. The division of tasks allows ameliorations in performance that could not become possible within a unicellular organism. This process has seen an increase both in the number of cell species (new typologies of tasks) and in the complexity of the organisms stemming from this differentiation. Though cell association is not an innovation of eukaryotes, as bacteria form colonies, the real progress which eukaryotes accomplish is the birth of a single individual made up of different cells, each having the same genome. This (r)evolutionary change is the cornerstone of the growing complexity we note as we “climb” the evolutionary tree of life. The first animals originate in water from the simple association of auxotrophic protists, which starting from only two types of differentiated cell have developed an increasing number of different organs.

Marx describes the birth of manufacture as follows: “The mode in which manufacture arises, its growth out of handicrafts, is therefore two-fold. On the one hand, it arises from the union of various independent handicrafts, which become stripped of their independence and specialised to such an extent as to be reduced to mere supplementary partial processes in the production of one particular commodity. On the other hand, it arises from the cooperation of artificers of one handicraft; it splits up that particular handicraft into its various detailed operations, isolating and making these operations independent of one another up to the point where each becomes the exclusive function of a particular labourer. On the one hand, therefore, manufacture either introduces division of labour into a process of production, or further develops that division; on the

other hand it unites together handicrafts that were formerly separate. *But whatever may have been its particular starting point, its final form is invariably the same—a productive mechanism whose parts are human being...* each workman becomes exclusively assigned to a partial function, and that for the rest of his life, his labour power is turned into an organ of this detail function” (C, I, 14, p. 320). In Marx’s analysis, each job can therefore be envisaged as a part of the same highly complicated productive process. And within the same job, every process is divided into several functions each performed by a different workman. The result of the division of labour is an increase in productivity and an intensification of labour. (cf. C, I, 14, p. 321-331).

Manufacture can affirm itself only with the dissolution of the guild system, which negates division of labour and avoids its alienation by maintaining the link between the worker and the means of production, and therefore the individuality of workers. Manufacture replaces the guild system because it is more suitable for permitting capital to appropriate a growing surplus value; it is the same process as when a new population (species), displaces the resident one, because it is fitter to live in a certain environment. According to Marx, the element of fitness (selective advantage) is the capacity of further developing the productive forces, i.e. the productivity of labour by means of improvements in technology.

In Chapter 14, Volume I, of *Capital*, Marx argues that the maturity of Manufacture can be identified with the affirmation of the capitalistic method of production. The capitalistic mode, in order to survive, requires further increases in the surplus value and therefore an ever-increasing labour productivity; the latter is possible only with the introduction of machinery. According to Marx, machinery is not engendered by division of labour per se; division of labour allows the alienation of labour and prepares the frame in which machinery can be introduced. This sets the stage to Modern Industry, where the employment of machinery is massive and no room is left for individual initiative. Again, the element of fitness that favours the birth of Modern Industry is its capacity of further developing the productive forces, which allows the growth of the surplus-value ripped off by capitalists.

The suppression of the isolated worker, phagocytized by the socialised worker is necessary because socialised labour is the basis on which machinery rests. “Modern Industry, as we have seen, sweeps away by technical means the manufacturing division of labour, under which each man is bound hand and foot for life to a single-detailed operation. At the same time, the capitalistic form of that industry reproduces this division of labour in a still more monstrous shape; in the factory proper, by converting the workman into a living appendage of the machine” (C, I, 15, pp. 454-455; see also C, I, 15, p.361, C, I, 15, pp.364-365, and C, I, 15, pp.407-408). (The importance of Marx's collective worker in the capitalistic production system is underlined by Bonzio (1992) who refers to

C, I, 15, p.359). It is worth noting that in Marx's view, the collective worker encompasses also managerial personnel, made up of partial labourers, who accomplish tasks of supervision and coordination. In the initial phase of capitalism those tasks are performed by the capitalist and become more and more necessary as production develops into a social combined process. Marx therefore depicts an evolutionary path along which, as long as the capitalist mode of production develops and capital expands, the productive tasks of the active capitalist which require his effort, are parcelled and delegated to some new kinds of labourers, the managerial and clerical personnel, all belonging to the same complex productive organism. On the necessity of supervision, required in the control of the combined labour operating in ever-augmenting dimensions and in increasing social antagonism, Marx writes: "That a capitalist should command on the field of production, is now indispensable as that a general should command on the field of battle. All combined labour on a large scale requires, more or less, a directing authority, in order to secure the harmonious working of the individual activities, and to perform the general functions that have their origin in the action of the combined organism, as distinguished from the action of its separate organs.... The control exercised by the capitalist is not only a special function, due to the nature of the of the social labour-process, but it is at the same time, a function of the exploitation of the social labour process, and it is consequently rooted in the unavoidable antagonism between the exploiter and the living and labouring raw material he exploits" (C, I, 13, p.313). And he continues "As cooperation extends its scale, this despotism takes forms peculiar to itself. Just as the first capitalist is relieved from actual labour so soon his capital has reached that minimum amount with which capitalist production, as such, begins, so now he hands over the individual workmen, and groups of workmen, to a special kind of wage-labourer. An industrial army of workmen, under the command of a capitalist requires, like a real army, officers (manager), and sergeants (foremen, overlookers), who while the work is being done command in the name of the capitalist. The work of supervision becomes their established and exclusive function" (C, I, 13, p.314). In the process of the valorisation of capital, the active capitalist, or his delegates, force each labourer to behave as a partial labourer and therefore to lose his completeness as an individual. The presence of workers to co-ordinate the collective process of production suggests a biological analogy with the regulatory genes, which direct the evolution of cell differentiation in a eukaryotic organism and determine its body plan.<sup>7</sup> Regulatory genes force each cell to specialise in a precise task and therefore "oblige" it to lose its pluri-potentialities.

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<sup>7</sup> The cells of a pluricellular organism, though possess the same genes develops in different species. This is possible because each cell does not express the totality of its genes as it perform a selection among them, depending on the different type task it must perform. This control system is ruled by proteins which are produced by some regulatory genes.

In Marx's analysis, the machinery system not only engenders a growing division of labour, which boosts productivity and the intensification of labour; it is also strongly connected with a further increase in the scale of production. Marx associates the employment of collective labour with scale economies. According to him, a large plant-size not only engenders savings in the use of constant capital (because of increasing returns to scale) but also permits the accrual of practical collective experience. (C, I, 15) Marx's idea that the expansion of capital dimension, related to the increasing complexity of the mode of production, is an immanent law<sup>8</sup> of capitalism, must not lead us to consider Marx's approach as deterministic, rather than evolutionary.

In Marx's schema the growth in dimensions of each single capital, resulting in an increasing sophistication of the productive technologies linked with the use and development of the highly complex "collective worker", can be compared with the biological process of anagenesis which determines an increase in complexity. Anagenesis creates new patterns, modifying the old ones with mutations, and engenders new configurations from the anatomical point of view. In a "simple" organism almost every mutation can be the starting point of a new evolutionary line. However, as long as complexity increases, the possible set of productive genetic mutations shrinks. The difficulty increases as complexity grows. A simpler body structure is likely to be more flexible and tolerant towards change than a more complex one. If we consider that the starting point of any complexity is always a single (fertilised) cell, it becomes clear that the development process (ontogenesis) from egg to adult acquires a stunning complexity, such that, in practice, nearly all the mutations that affect ontogenesis will be deleterious. In this sense it is proper to state that "ontogenesis" constrains phylogenesis.

An example of the "ineluctability" towards increasing complexity, suggested by de Duve (2003), is the evolution of the nervous system. According to him, it can be difficult to imagine an environment in which the fact of possessing a high-developed cerebral system is not advantageous for an animal. In this sense, according to de Duve, the direction towards complexity can be envisaged as a compulsory event, since it is possible both the genetic *and environmental* plans. This evolutionary path can be transferred to Marx's world, where progressive increasing complexity, seems an ineluctable event.

### **The transition from capitalism to socialism in Marx's *Capital***

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<sup>8</sup> "Moreover, the development of capitalist production makes it constantly necessary to keep increasing the amount of the capital laid out in a given industrial undertaking, and competition makes the immanent laws of capitalist production to be felt by each individual capitalist, as external coercive laws. It compels him to keep constantly extending his capital, in order to preserve it, but extend it he cannot, except by means of progressive accumulation" (C, I, 24, p.555).

In Chapter 27, Volume III, of *Capital*, Marx deals with the role of credit in increasing concentration of capital and in the birth of stock companies. According to Marx, the organisation of labour within stock companies represents the climax of the capitalistic mode of production, where all productive functions are divorced from the ownership of the means of production. Here the active capitalist is transformed into the pure administrator of the capital of others, and capital becomes social capital, owned by individuals who are directly associated, as opposed to private capital. “This result of the ultimate development of capitalistic production is a necessary transitional phase towards the reconversion of capital into the property of producers, although no longer as the private property of the individual producers, but rather as the property of associated producers, as outright social property”(C, III, 27, p.437). Marx therefore argues that the development of the credit system within the capitalistic mode of production has a crucial role in the *potential abolition* of capitalistic private property: “So far we have considered the development of the credit system-and the *implicit latent abolition* of capitalistic property- mainly with the reference to industrial capital” (C, III, 27, p.440).

The same position can be traced in the last pages of Chapter 15, Volume III of *Capital*, devoted to the internal contradiction of the law of the tendency to fall of the rate of profit, where he writes: “We have seen that the growing accumulation of capital implies its growing concentration. Thus grows the power of capital, the alienation of the condition of social production personified in the capitalist from the real producers. Capital comes more and more to the force of a social power, whose agent is the capitalist. .... It becomes an alienated independent, social power, which stands opposed to society as an object, and as an object that is the capitalist’s source of power. The contradiction between the general social power into which capital develops, on the one hand, and the private power of the individual capitalists over these social conditions of production, on the other, becomes ever more irreconcilable, and yet contains the solution to the problem, because it *implies* at the same time the transformation of the conditions of production into general, common, social, conditions. This transformation stems from the development of the productive forces under capitalistic production, and from the *ways and means* by which this development takes place.” (C, III, 15, p.264)

Marx is aware that the *implied* transformation of the social conditions of production into general social condition, into a socialised property regime, necessitates as a precondition the change in the ruling class, i.e. the upsurge of political predominance of the proletariat, by means of class struggle. “[t]he *historical development of the* antagonism, immanent in a given form of production, is the only way in which that form of production *can be dissolved* and a new form established”. (C, I, 15, p. 458). As a lucid social and political analyst, Marx realises that the

*revolutionary ferments* present in the antagonism characterising the capitalistic form of production, resulting from the organisation of labour required by Modern Industry, could lead, *if* fully developed, to the end of capitalism by *abolishing* the capitalistic property regime. Marx understands the secret of the mechanism driving structural change; he isolates the genetic mutation (the scission between every productive function and the ownership of capital) which makes the “species” vulnerable: if an abrupt change in the environment occurred (the change in the relations of production) by means of the action of the proletariat, selection would favour a new species (the socialist society). He not only *forecasts* the extinction of capitalism but *also the form of the new society*. Here we should pause to reflect: in both Darwinian and Marxian evolution, nothing of the powerful conceptual frame is inherently capable of anticipating future outcomes; as such, from this point on, we dwell with the important yet distinct thinker in his socio-political denomination.

Though Marx is aware that individual action is negligible in changing the course of history, he behaves as a visionary, negating his theory and calling people to political action. This is what he does in the very short Chapter 32 of Volume I of *Capital*, devoted to the historic tendency of capital accumulation. Here he forecasts the end of the capitalistic society, and further specifies that the germs of the transition to a new form of society are to be found in the transformation of the labour class, which takes place thanks to the ever-increasing cooperation, occurring in the capital centralisation process. This is because the exasperation of the division of labour not only generates the growing oppression of the masses, but is also matched by an increasing revolt of the working class, “a class always increasing in numbers, and disciplined, united, organised by the very mechanism of the process capitalistic production itself.” (C, I 32, p.715) Marx understands the major role of class awareness, which he believes possible thanks to the mechanism of the capitalistic mode of production, which makes it possible to ignite a process of further change in the relations of production.<sup>9</sup>

All Marx’s analysis of the transformation of the capitalistic private property shows that he is aware that the environment needs a geological time scale for change, but with visionary lucidity he understands what kind of abrupt environmental change, the upsurge of a conscious working class, should occur in order to allow the birth of a new form of society. With his knowledge of the historic, economic and political situation he presses masses to fight against the inertia of the old conservative forces. It is not by accident that Marx concludes this short chapter with a long

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<sup>9</sup> On this issue see also Chapter 15, Volume 1 of *Capital*, where Marx speaks of the education of the working-class introduced by the Factory Act, because of the exigency of Modern Industry to replace the present detailed worker, with a “fully developed individual, fit for a variety of labours, ready to face any change of production, and to whom the different social functions he performs, are but modes of giving free scope of its own and acquired powers” (C, I, 15, p.458).

footnote, quoting the Communist Manifesto, about the revolutionary role of the proletariat, whose victory he forecasts as ineluctable.

We cannot therefore agree with Schumpeter (1950, p.37) who argues that Chapter 32 of *Capital* is the “crowning finale” not only of Volume I but also of Marx’s whole work. In this chapter, in fact, Marx abandons his *histoire raisonnée*. He does not offer the reader an interpretation of historic facts but his individual political contribution for changing history and fighting against the conservative social forces. He feels obliged to fight these forces because he does not undervalue them, even if this means putting aside his awareness that individual action cannot change, at least not abruptly, the course of history. Marx’s political action is necessarily oriented toward a well-specified end, but this does not allow us to assert that his analysis of structural change is teleological.

The avowed aim of Marx’s political action is the self-realisation of man, and this can be traced back to Marx’s early writings. In May 1843, Marx plans to publish with Ruge the *Franco-German Yearbooks*. He writes to him that “it is our task to drag the old world into the full light of day and to give positive shape to the new one” [MEW, p.206], according to Marx the analysis of the old world is therefore necessary, even though this does not eliminate all the difficulties. In fact, in September 1843 he writes to Ruge that “For even though the question ‘where from?’ presents no problems, the question ‘where to?’ is a rich source of confusion...we do not anticipate the world with our dogmas but instead attempt to discover the new world through the critique of the old.” [MEW, p.207] This is entirely in line with the method that Marx adopts in his opus magnum. However in the same letter Marx writes: “Nothing prevents us, therefore, from lining our criticism with a criticism of politics, from taking sides in politics, i.e. from entering into real struggles and identifying ourselves with them. This does not mean that we shall confront the world with new doctrinaire principles and proclaim: Here is the truth, on our knees before it! ...Instead we shall simply show the world why it is struggling, and consciousness of this is a thing it must acquire whether it wishes or not...It will then become plain that the world has long since dreamed of something it needs only to become conscious for it to possess it in reality”. [MEW, p.208-209] Marx’s objective is the “self-clarification (critical philosophy) of the struggles and wishes of the age” which allows man self-realisation. It is in conceiving the self-realisation of man as the ultimate end of history, that Marx turns into a *visionary*, who envisages socialism as the *necessary* achievement of history, since “the *reality* of the true existence of man”<sup>10</sup> is the principle of socialism.

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<sup>10</sup> The *reality* of the true existence, politics, as opposed to the theoretical existence of man concerning religion and science.

The same trend of thought can be found in Marx's *Economic and Philosophical Manuscripts* where Marx dealing with 'alienated labour', argues that alienation can be abolished if the private property is abolished, and that 'true communism' is the abolition of private property as human self-estrangement<sup>11</sup> and the "restoration of man to himself as a social, i.e. human being." According to Marx, true communism is the "solution to the riddle of history and knows itself to be the solution. The entire movement of history is therefore both the actual act of creation of communism -the birth of its empirical existence- and for its thinking consciousness, the comprehended and known movement of its becoming". In this passage Marx seems to consider the "movement of history" as oriented towards the achievement of true communism as an *instrument* of man self-realisation.

The self-realisation of man remains Marx's true goal, and he goes on writing that "the whole of history is a preparation, a development for '*man*' to become the object of the sensuous consciousness and for the needs of 'mans as a man' to become [sensuous] needs. History itself is a *real* part of *natural history* and of nature's becoming man." Man is Marx's unique focus and the ultimate goal of history is not the realisation of communism but that of man: Communism is a "*real* phase necessary for the next period of historical development, in the emancipation and recovery of mankind. *Communism* is the necessary form and the dynamic principle of the immediate future, but communism is not as such the goal of human development – the form of human society." [MEW, p.358]. It is worth noticing that, even if Marx is driven by his political passion, which leads him to consider communism as a *necessary* phase, he allows it to be merely a *phase* in the course of man self-realisation.

Before concluding, and in order to understand *how* Marx *describes* his method of inquiry, it is worth referring to the afterword to the second edition of *Capital*. Here Marx replies to an article of *The European Messenger* of St. Petersburg, issued in May 1872, dealing with the method of *Capital* and accusing it to be German-dialectical. This is how Marx responds to this accusation: he first quotes the following abstract of the same article<sup>12</sup>: "The one thing which is of moment to Marx, is to find the law of the phenomena with whose investigation he is concerned; and not only is that law of moment to him, which governs these phenomena, in so far as they have a definite form and mutual connexion within a given historical period. Of still greater moment to him is the law of their variation, of their development , i.e. of their transition from one form to another, from one series of connexions into different a one. [...] in his opinion every historical period has laws of its own...As soon as society has outlived a given period of development, and is passing over from one given stage to another, it begins to be subject also to other laws. In a word, economic life offers us a

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<sup>11</sup> As opposed to what Marx calls 'crude communism' which is the product of envy and aims to the universalization of private property and through which "the category of worker is not abolished but extended to all men". [MEW, p.346]

<sup>12</sup> The square brackets indicate parts of the abstract, present in Marx's afterword, which I have omitted.

phenomenon analogous to the history of evolution in other branches of biology.[...] The scientific value of such an inquiry lies in the disclosing the special laws that regulate the origin, existence, development and death of a given social organism and its replacement by another and higher one. And this is the value that, in point of fact, Marx's book has".[C, I, pp.27-28] Marx, then, comments this passage as a "striking and generous" picture of his method which he identifies as dialectical, though not Hegelian. He specifies that his method of inquiry requires a deep understanding of the object of investigation, the study of its various forms of development and the description of the relation existing among them. According to Marx, "Only after this work is done, can the actual movement be adequately described. If this is done successfully, if the life of the subject-matter is ideally reflected as a mirror, then it may appear as if it we had before us a mere a priori construction." Marx considers Hegel's method as opposite to his own: "To Hegel the life-process of the human brain, i.e., the process of thinking, which under the name of "the Idea", he even transforms into an independent subject, is the demiurgos of the real world, and the real world is only the external phenomenal form of "the Idea". With me, on the contrary, the ideal is nothing else than the material world reflected by the human mind, and translated into forms of thoughts."[C, I, pp.27-29] These are the words of Marx, *as analyst of the material world*. However, Marx is a *visionary*, who has his own ideal, man self-realisation, which is *not the reflection* of the material world, which therefore he wants to *change*.

### **Conclusion**

We can conclude by saying that Marx's analysis of the transition from a pre-capitalistic to a capitalistic society can be interpreted as driven by evolutionary forces, which are neither teleological nor deterministic.<sup>13</sup> Marx envisages the changes occurring in the organisation of labour as genetic mutations that are selected by a rather stable environment, which guarantees private property and activates the market selection mechanism, choosing as fitness criterion the level of surplus value produced. These genetic mutations result in a species, the capitalistic mode of production, which in biological terms can be considered as a "specialist", a species highly suited to living in the present environment. As for every specialist, however, an abrupt change in the environment can cause its extinction. The predicted end of the capitalistic society can also be envisaged in evolutionary terms, provided we understand Marx's moral duty to change the environment abruptly, so as to allow the latent mutation (the scission between every productive function and the ownership of capital carried by the socialisation of labour) to be selected and give

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<sup>13</sup> Cf. Elster (1986, p.22) who argues that Marx uses functional explanation to define both the stability of society and the tendency towards communism. By functional explanation he means the justification of social phenomena in terms of their positive consequences for somebody or something, though no evidence of any intention of engendering such consequences has been demonstrated. On the assumption of teleological stance incorporated in Marx see also Ramstad (1993).

birth to a new species. Moreover, the prevision of what the new society (species) will be is not engendered by Marx's powerful analytical frame of structural change: it is the result of his political passion. We therefore acknowledge the importance of class struggle in Marx's discourse but we disagree with Hodgson (1994) who argues that though Marx praises Darwinism, most likely because of its atheistic and materialistic insights, he does not accept Darwin's theory of natural selection. According to Hodgson, this is because his conception of history, governed by class conflict, is antagonistic to the Darwinian evolutionary mechanism based on the process of natural selection among highly diversified individuals. Hodgson's claim is that the Marxian view of history, based on class conflict leading to turbulent changes, is revolutionary rather than evolutionary.

Against the argument that Marx's idea of socialist society, based on the absence of class conflict, diversity in the forms of ownership, and productive institutions, eliminates the propulsive elements of social change (Hodgson, 1994), we can reply with the counter argument proposed by Sylos-Labini (1994), who argues that absence of social conflict does not necessarily imply immutability in the mode of production, because in Marx's analysis innovation is essential in the process of development, and Marx imagines the role of innovations as vital in the socialist society.

A concluding remark, I consider the present paper as an initial attempt of exploring a line of enquiry which may discover a deep structure isomorphism between Darwinian and Marxian views of evolution of the respective fields. In the present perspective it is a near platitude to say that historic processes evolve, and thus that Darwin and Marx are evolutionists; this however should not obscure to us their unique greatness and originality. Darwin's originality and enduring value resides in two points: first, the hypothesis about the driving forces of evolution; second the striving for a solid theoretical frame of a scientific (i.e. minimally confutable) apparatus. Analogously, Marx's greatness is to be found: first, in his lucidity in isolating the forces of evolution which can be explained in terms of natural selection building on the latent variability to yield the "best fit"; second, in the adoption of a rigorous method of inquiry, which requires a deep understanding of the object of investigation, the study of its various forms of development and the description of the relation existing among them.

Darwin's theory of natural selection discards the theological answers to the questions related to the existence of species and their characteristics. Analogously, Marx considers the categories of "commodity", "capital", "private property" and "labour" as the results of evolving systems of production, which have no theological explanation and are not immutable. From Marx's evolutionary analysis of structural change it emerges that the Capitalistic mode of production is not life but is just an expression of life; we must therefore expect its end. What will substitute it will

depend on: a) the environment; b) the species, or the mode of production, from which it will be possible to draw the genetic pool which fits best.

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