

MARX, LEFEBVRE AND RHYTHMANALYSIS

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Introduction

In his last writings, Henri Lefebvre (1992) developed Marxist theory drawing on the notion of rhythmanalysis, while noting that the word “rhythmanalysis” was originally coined by the Portuguese philosopher Lúcio Pinheiro dos Santos, and subsequently adopted by Gaston Bachelard (1949). But as Rodrigo Sobral Cunha (2009, 575) argues, the idea of a philosophy of rhythm that led to rhythmanalysis springs fundamentally from the dialogue between Pinheiro dos Santos and Leonardo Coimbra, and the latter author has been neglected in the subsequent discussions on rhythmanalysis.

Coimbra focused on the ontological dimensions of rhythm, within what may be termed a “rhythmontology” (Cunha, 2009, 577). While ideas connected to a philosophy of rhythm appear also in the literary work of the poet Teixeira de Pascoaes, who was a close collaborator of Coimbra in various projects, and in the literary work of Raul Brandão, who was a close friend and collaborator of Pascoaes, it is very difficult to trace exactly where the original idea came from.

Bachelard (1963, 138) argues that Pinheiro dos Santos bases his rhythmanalysis in a creationist philosophy. Since the latter term was then used in Portugal to designate Coimbra’s philosophy, it seems reasonable to assume that Coimbra’s rhythmontology is the basis for rhythmanalysis, which was developed by Pinheiro dos Santos drawing on Coimbra’s rhythmontology, and subsequently by Bachelard (1963, 127-146) drawing on Pinheiro dos Santos. A study of the sources from which Coimbra developed the idea of rhythmontology would also be

an interesting project.¹ But it is clearly outside the scope of the present text, which is concerned with the use of rhythmanalysis for understanding Marx's conception of capitalism.

This is an idea that has already been developed by Lefebvre to some extent. But Lefebvre provides essentially a development of Marxist theory within the study of the spatial dimension of capitalism. Here, the goal will be merely to use rhythmanalysis to interpret various dimensions of Marx's theory, such as his conception of the labour process, of value, and of technology. But a proper understanding of rhythmanalysis requires also an understanding of its origins in Coimbra's rhythmontology. So I shall start by addressing Coimbra's rhythmontology, in order to explain the origins of rhythmanalysis as developed by Pinheiro dos Santos and subsequently by Bachelard.

After this exposition of the origins of rhythmanalysis, I will then address Lefebvre's approach to rhythmanalysis. Lefebvre's studies on rhythmanalysis will be particularly helpful for addressing Marx's own theory, not because of any putative superiority of Lefebvre's approach over the approaches of Coimbra, Pinheiro dos Santos or Bachelard, but essentially because Lefebvre's view is closer to Marx's own analysis of capitalism, which Lefebvre develops focusing on a spatial dimension. So Lefebvre's perspective can be more readily employed for the purpose of interpreting Marx's theory in a rhythmanalytical approach. To do so, I shall address Marx's theory of the labour process, of value, and of technology, drawing on rhythmanalysis.²

Rhythmontology as the origin of rhythmanalysis

Coimbra develops an ontological conception where monads are the central ontological entity, and can be best understood in terms of the

¹ Such a project would require further work at the Biblioteca Memorial Leonardo Coimbra, at the Foz Campus of the Universidade Católica Portuguesa in Porto, where the personal library of Leonardo Coimbra with his written notes is kept.

² When interpreting the various authors addressed below, I shall often provide the original text of the authors in footnotes, and translate it to English in the main text. All translations from Portuguese and French are my own – NOM – and all the italics in the original or translated texts are the original emphasis from the author.

notion of rhythm, within what may be termed a rhythmontology (Cunha, 2009, 577), which is developed in more detail in Coimbra's 1912 book *O Criacionismo (Esboço de um Sistema Filosófico)*, which became very influential in Portugal.

In this book, Coimbra defines monads as any "directionism" of matter, that is, matter coordinated in a certain direction, or tending in a certain direction.³ Matter so directed possesses a certain rhythm, through which life, creation and freedom arise.⁴ Since rhythm is the source for life, creation and freedom, monads with lesser rhythm fall and are perpetually forgotten, remaining in continuous enslavement to sensation, that is, to what is actual.⁵ Thus, the existence of a precarious monad is characterized by a faded rhythm. Conversely, the monad becomes more real as it increases its activity of synthesis of matter in a given direction. But since rhythm is the driving force of this process, this synthesis consists in the synthesis of the associated rhythms. Monads are indeed related through their rhythms of possible action or surplus of reaction.⁶ And it is through the difference of rhythms that a monad with more freedom can be distinguished from a monad with less freedom, while unification comes through a surplus of action.⁷

The limiting case of a monad with no life, creativity or freedom is the case of a simple mechanism. Here Coimbra brings the notion of time for clarifying the differences. The notion of time is understood in terms of rhythm, for time measures the rhythm of the monads, or more

³ "Chamemos mónada a todo o direccionismo de matéria, seja qual for a sua categoria, desde o mais ligeiro afloramento de vida até à mais ampla e profunda consciência." (Coimbra, 2004, 354).

⁴ "O ritmo activo, o excesso de reacção, é o caminho da matéria (excesso nulo) para a liberdade, permanente excesso, vivo e criador." (Coimbra, 2004, 357)

⁵ "As mónadas de pequeno ritmo serão num esquecimento perpétuo e numa escravização contínua à sensação, isto é, ao actual." (Coimbra, 2004, 358)

⁶ "Deste modo se relacionam as mónadas pelos seus ritmos de acção possível ou excedente de reacção." (Coimbra, 2004, 356).

⁷ "Uma mónada precária é exactamente aquela que se esteriliza e esgota no acidental imediato. A sua existência é dum apagado ritmo, vibrando ao sabor das oposições.

A mónada é tanto mais real quanto maior for a sua actividade de síntese, isto é, quanto maior for a unificação das oposições.

Pois o que é essa unificação, senão a medida da liberdade da mónada, do seu excesso sobre a acção, do seu ritmo? Como compreender a realidade na sociedade monadística senão pela síntese dos ritmos associados?

E que seria essa sociedade senão a hierarquia dos determinismos da acção, desde o primeiro instrumento de acção até à *constância* que a diferença de ritmos permite ser observada pelas mónadas mais livres em relação às menos livres? (Coimbra, 2004, 362)

exactly, the difference between the rhythm of action of the monads.⁸ A mechanism with no creative activity thus has no time, since there is no rhythm through which monads would lead to life, creation and freedom.⁹ Coimbra advocates thus that we should move into metaphysics, until thought, which is an expression of life, creativity and freedom, becomes the *rhythmic excess* of the monad, as its active freedom.¹⁰

Coimbra's ontology became later very influential in the Porto School of Philosophy, whose main ideas were more systematically developed in the first Faculty of Letters of the University of Porto, founded in 1919 through the efforts of Leonardo Coimbra, and extinguished in 1928 (although classes continued until 1931, since students enrolled in 1928 were given permission to finish their degrees). A precursor of many of the ideas developed in the Faculty of Letters at Porto was the cultural movement *Renascença Portuguesa* (literally, "Portuguese Renaissance"), led by the poet Teixeira de Pascoaes, and subsequently by Leonardo Coimbra.

The origin of the term "Porto School" ("Escola do Porto") is uncertain, but seems to have been used already in the days of the *Renascença*, before the Faculty of Letters of the University of Porto was founded. This can be inferred from a letter ("bilhete postal") dated from 8 September 1916 sent by Leonardo Coimbra to Teixeira de Pascoaes asking for the address of an English person who used the term "School of Porto" in order to designate a group of thinkers that includes Teixeira de Pascoaes and Leonardo Coimbra (Coimbra, 2014, 682).¹¹ This may well have been a sporadic reference, and further research into the correspondence between Coimbra and Pascoaes is necessary to clarify whether this is the case. But it seems to constitute an early use of the expression "School of Porto".

The *Renascença* tried to infuse the newly created Portuguese republic (created in 1910 following the fall of the Portuguese monarchy) with the spirit of Portuguese culture, as understood within the *Renascença*.

⁸ "O tempo mede a diferença do ritmo de acção das mónadas" (Coimbra, 2004, 376)

⁹ "O tempo é a medida do ritmo das mónadas; por isso o mecanismo não tem tempo, mas presente contínuo." (Coimbra, 2004, 362)

¹⁰ "Caminhe-se até à metafísica, até que o pensamento seja o próprio *excesso rítmico* da mónada, a sua liberdade activa." (Coimbra, 2004, 366).

¹¹ "A direcção do inglês que nos chamou "Escola do Porto"?" (Coimbra, 2014, 682)

In the *Renascença* we find already some of the ideas behind the philosophy of rhythm in various authors associated with Coimbra. A widely cited aphorism by Pascoaes states that “rhythm is the substance of things”¹². And the idea is expressed in various instances in the poetry of Pascoaes. In his 1934 book *São Paulo*, for instance, Pascoaes makes an analogy between undulation and being, which again reinforces the idea of a rhythmic pattern as the substance of being¹³, and is also in line with Coimbra’s statement “being undulates in rhythms”.¹⁴ In his 1921 book *O Bailado*, Pascoaes explains his poetical inspiration in terms of a “musical state” that makes him “vibrate when in contact with things”, reaching the inner substance of things, which presupposes that those things are constituted by vibration.¹⁵

Raul Brandão, who was very close to Pascoaes, also refers to vibration as the substance of the universe, and writes in his 1917 book *Húmus* (which is typically seen as his *magnum opus*) that “the universe is a vibration”, and continues noting that “life is a vibration of the vibration”.¹⁶ In one of the many letters exchanged between Brandão and Pascoaes, Pascoaes divides poets into sculptors or musicians, presupposing that poetry typically tries to express plastic reality or inner vibration. An exception, Pascoaes writes, is the British romantic poet John Keats, who for Pascoaes is the only poet that is truly a poet, rather than a sculptor or a musician.¹⁷ Quite significantly, Pascoaes includes Guerra Junqueiro, one of the most influential Porto poets, in the group of “musicians”.

The literary work produced by various writers connected to the School of Porto contains an important ontological dimension, and Coimbra’s rhythmontology seems to be particularly influential in this literary work. Effectively, in his 1915 book *Arte de Ser Português*, where Pascoaes tries to trace the roots of Portuguese thought, he highlights Coimbra’s 1912 book *O Criacionismo* as an example of a philosophy

¹² “O ritmo é a substância das coisas” (Pascoaes, 2002, 339)

¹³ “O cavalo vê a ondulação e não a onda, o ser e não os seres...” (Pascoaes, 1984, 299)

¹⁴ ““O ser ondula em ritmos”, escreveu o filósofo em *A Morte*” (Cunha, 2009, 578).

¹⁵ “Adquiri então aquele *estado musical* que me faz vibrar ao contacto das cousas; e, em mim, ressoa o íntimo canto que nelas jaz adormecido...” (Pascoaes, 2002, 165).

¹⁶ “O universo é uma vibração. A vida é uma vibração da vibração.” (Brandão, 2015, 230).

¹⁷ “Poeta só poeta, – só o Keats!” (Vilhena e Mano, 1994, 182)

driven by the “naturalist idealism” behind Portuguese thought. (Pascoaes, 1991, 78). But despite the influence of Coimbra’s rhythmology on Portuguese literary work, its philosophical influence was felt essentially through the contributions of Pinheiro dos Santos, who brought the idea to Rio de Janeiro, in Brazil, and from there to Paris, in France, as I shall now explain.

From Porto and Lisbon to Rio and Paris

As Cunha (2009, 580) explains, the idea of rhythmanalysis developed originally in the dialogue between Leonardo Coimbra and Lúcio Pinheiro dos Santos, who were colleagues at a secondary school in Lisbon (Liceu Gil Vicente) between 1914 and 1917. Pinheiro dos Santos moved subsequently to Rio de Janeiro in Brazil, and it is from Rio de Janeiro that he sent to Gaston Bachelard a two-volumes text titled *La rhythmanalyse*, dated from 1931 and published by a society based in Rio de Janeiro (Cunha, 2009, 582). This text, where the term *rhythmanalysis* seems to have been used for the first time, has now been lost. However, Bachelard summarised it in the eight chapter of his 1936 book *Dialectique de la Durée*, a chapter titled also *La rhythmanalyse*. Bachelard’s text remains the sole source for knowing the contribution of Pinheiro dos Santos.¹⁸

Bachelard notes that Pinheiro dos Santos studied what Bachelard (1963, 128) calls *rhythmic phenomenology* from three points of view: material, biological and psychological.¹⁹ Bachelard stresses the importance of the first two points of view, but notes that he is especially interested in the psychological point of view, to the extent that it provides a basis for Bachelard’s analysis of duration.²⁰ This means that what we find in Bachelard is not an exhaustive explanation of rhythmanalysis as expounded by Pinheiro dos Santos, but rather a use of

¹⁸ See also Baptista (2010) and Cunha (2010) on the contribution of Pinheiro dos Santos.

¹⁹ “M. Pinheiro dos Santos étudie la phénoménologie rythmique à trois points de vue: matériel, biologique, psychologique.” (Bachelard, 1963, 128).

²⁰ “C’est surtout les bases de la psychologie de la durée qui nous intéressent.” (Bachelard, 1963, 128).

its key tenets to clarify the ideas exposed in the preceding chapters of Bachelard's *Dialectique de la Durée*. But in so doing, Bachelard still finds the need of addressing various material and biological aspects, and the exposition contains interesting similarities to Coimbra's rhythmontology.

More importantly, Bachelard (1963, 138) writes that Pinheiro dos Santos bases his Rhythmanalysis on *creationist philosophy*.²¹ Now, since "creationist philosophy" was the term used in Portugal to denote Coimbra's philosophy, as expressed in the monadology developed in Coimbra's 1912 book *O Criacionismo*, it seems that Coimbra's rhythmontology is indeed the basis for the rhythmanalysis developed by Pinheiro dos Santos. The ideas on rhythmanalysis advanced by Pinheiro dos Santos are, in turn, used by Bachelard for clarifying the psychology behind his conception of the *durée* and, as Henri Lefebvre (2004, 9) writes, it is also used in Bachelard's (1949) *Psychoanalysis of Fire*.

The term rhythmanalysis is subsequently taken up by Henri Lefebvre (1992) in his posthumous 1992 book *Éléments de Rhythmanalyse* (Cunha, 2009, 583), the last book written by Lefebvre, which was preceded by a 1986 text published with Catherine Régulier titled "Essai de rhythmanalyse des villes méditerranéennes" (Lefebvre and Régulier, 1986), a text that was included in the 1992 edition of *Éléments de Rhythmanalyse*. The book has been published in an English translation by Stuart Elden and Gerald Moore in 2004, and the idea of rhythmanalysis has become increasingly important across the world since then.

Lefebvre (2004, 9) writes that "Philosophers (including Nietzsche, the philosopher poet) only presaged the importance of rhythm", while adding: "It is from a Portuguese, dos Santos, that Bachelard, in *The Psychoanalysis of Fire*, borrows the word 'rhythmanalysis', though without developing the meaning any more than did dos Santos." Lefebvre then tries to develop the meaning of rhythmanalysis through what, in his view, constitutes a more elaborated approach than those previously attempted. Lefebvre dismissive attitude towards the contributions of

²¹ "M. Pinheiro dos Santos appuie sa Rhythmanalyse sur la philosophie créationiste, sur une sublimation active the toutes les tendances." (Bachelard, 1963, 138)

Pinheiro dos Santos and Bachelard is not entirely fair, to say the least – see Cunha (2009, 583) for a discussion – and seems to spring from the fact that Lefebvre is interested in developing rhythmanalysis in different directions, rather than from a lack of elaboration in previous contributions to rhythmanalysis. I shall now elaborate Lefebvre’s rhythmanalysis in more detail, in order to then suggest that rhythmanalysis can fruitfully illuminate various central topics in Marx’s analysis, connected to the labour process, value and technological change.

Lefebvre’s rhythmanalysis

Lefebvre (2004, 6) notes that rhythm implies a repetition in time and space, and repetition implies a *measure*. However, in many instances we cannot perceive the mathematical properties of a rhythm, even if it is implied, for example, in a sound that we hear, whose frequency we cannot capture mathematically. Thus, Lefebvre (2004, 11) writes that “rhythms escape logic, and nevertheless contain a logic, a possible calculus of numbers and numerical relations.”

Lefebvre (2004, 68) then distinguishes between: (a) isorhythmia, the equality of rhythms; (b) polyrhythmia, the coexistence of diverse rhythms. Within polyrhythmia, we can distinguish between (i) eurhythmia, the healthy association of various rhythms; and (ii) arrhythmia, where various “rhythms break apart, alter and bypass *synchronisation*” leading to a “pathological situation” (Lefebvre, 2004, 67). After distinguishing between isorhythmia, eurhythmia, and arrhythmia, Lefebvre (2004, 68) concludes that rhythmanalysis “essentially consists in the forming of these concepts into a work”. While isorhythmia is a rare particular occurrence, polyrhythmic situations such as eurhythmia and arrhythmia are more common. Lefebvre’s key point is that a healthy society should aim for eurhythmia rather than arrhythmia.

In order to understand how eurhythmia and arrhythmia may arise, it becomes important to understand how rhythms can be produced or changed. Lefebvre (2004, 14) also notes that “for there to be *change*, a social group, a class or caste must intervene by imprinting a rhythm

on an era, be it through force or in an insinuating manner.” Lefebvre (2004, 14) continues noting: “In the course of a *crisis*, in a critical situation, a group must designate itself as an *innovator* or *producer of meaning*.” It is through the production of new habits that this new rhythm is created, for according to Lefebvre (2004, 75), rhythm is “created by habit”, and so the imposition of habits is also the creation of rhythms. The biological rhythms are altered through social life leading to educated rhythms, which are social rhythms (Lefebvre, 2004, 43).

Capitalism brings a particularly disrupting situation, expressed in technology, money and the associated rhythms, with implications for the possibility of eurhythmia. Thus Lefebvre (2004, 55) writes: “The rhythm that is proper to capital is the rhythm of producing (everything: things, men, people, etc.) and destroying (through wars, through *progress*, through inventions and brutal interventions, through speculation, etc.)” This duality of producing and destroying is, however, part of a duality which is implied in rhythm, for rhythm implies a duality between strong and weak times (Lefebvre, 2004, 78). But in capitalism, this duality is led to extremes, bringing arrhythmia rather than eurhythmia.

Lefebvre (2004, 11) also notes the need of moving from “dialogue (two voices) to dialectic (three terms)”, while noting that the need of a triadic approach brings in territoriality to Marxist analysis, in addition to the opposition between capital and labour. Thus, Lefebvre (2004, 11) writes: “Even from the *Marxist* standpoint there were confusions; much was staked on the two-term opposition *bourgeoisie-proletariat*, at the expense of the third term: the soil, agricultural property and production, peasants, predominantly agricultural colonies.”

This emphasis on soil and land, as a geographical dimension for Marxism, has been advocated more recently by David Harvey (2006) who, drawing on Lefebvre in various instances, advocates the need for a historico-geographical materialism. As Harvey (2006) shows, Marx actually engaged in a detailed analysis of agronomy taking into account the properties of the soil, drawing on the notion of rent used by the classical political economists. Land was a prominent topic for William Petty, for example, who is identified by Marx as the first classical political economist when distinguishing classical political economy from

vulgar political economy.²² Marx argues that while vulgar economy focuses on superficialities, classical political economy looks into the conditions of production that lie beyond superficial phenomena. Marx is very critical of vulgar economy, but finds important scientific insights in classical political economy since Petty.

Land is so central for Petty that even when measuring the cost of production he suggests that human labour can be measured in terms of the quantity of land that is necessary to sustain the labourer. The natural rhythms associated with the regeneration of the soil play a key role here. And even David Ricardo (1821), the classical political economist that influenced Marx the most, placed agriculture as the central sector in his analysis of the economy. The soil and agriculture were clearly central topics for the classical political economists, and were developed by Marx (1981) in the third volume of capital, which was never finished, and was published by Friedrich Engels in 1894, after Marx's death in 1883. But Lefebvre is correct in pointing out that much Marxist analysis has neglected this aspect.

While Lefebvre's (2004) contribution to rhythmanalysis draws on the analysis of Marx in order to understand space, Harvey (2006) draws on Marx's theory to understand the production of spatial configurations, but without discussing rhythmanalysis. I shall now argue that the notion of rhythmanalysis can play an important role in understanding Marx's analysis of the labour process, value and technology. A central tenet of the idea to be developed now is that the analysis of the labour process developed by Marx can be best understood once we grasp how different rhythms act in capitalist society, leading to the production of value and its distribution through wages, profits and rent.

²² "Once and for all I may here state that by classical Political Economy I understand that economy which, since the time of W. Petty, has investigated the real relations of production in bourgeois society, in contradistinction to vulgar economy, which deals with appearances only, ruminates without ceasing on the materials long since provided by scientific economy, and there seeks plausible explanations of the most obtrusive phenomena, for bourgeois daily use, but for the rest, confines itself to systematising in a pedantic way, and proclaiming for everlasting truths, the trite ideas held by the self-complacent bourgeoisie with regard to their own world, to them the best of all possible worlds." (Marx, 1999, 493).

The rhythmanalysis of the labour process and value

For Marx, necessary labour consists in the quantity of labour time necessary for reproducing the labourer's means of subsistence, so that labour power can be maintained. Such an amount of time depends on the biological and social needs of the labourer, and the productivity of the existing mode of production. So the biological rhythm of the labourer, the social rhythm of various activities connected to human life, and the rhythm of production are all important determinants of necessary labour.

As noted above, Lefebvre (2004, 14) stresses the ability of a given group for imposing the rhythm of an era. In Marx's analysis of capitalist society, the capitalist class can be seen as the group that imposes rhythm on the labourer. This ability to impose a given rhythm on the labourer, due to differential power relations between capitalist and labourer, enables the capitalist to demand that more labour is performed beyond necessary labour. Marx assumes a case where capitalists have equal power, and so a capitalist cannot exploit another (if this happens, the exploited capitalist is in truth a labourer). This leaves labourers as the source of a surplus to be obtained when labour time continues beyond what is necessary for the reproduction of labour power, leading to the emergence of surplus labour, and surplus value.

Wages will correspond to what is necessary for purchasing the means of subsistence necessary for reproducing labour power which, together with the means of production that must also be reproduced, we may term necessary production. When labour time continues beyond what is necessary for the reproduction of labour power and the means of production, a surplus arises due to the difference between total production and necessary production, which is the source of profits. An acceleration of the rhythm of production, or a greater turnover obtained through an increased rhythm of circulation of commodities, are various means for obtaining a greater surplus.

Technology assumes a particularly important role in setting up the rhythm of production, and incidentally the rhythm of human life. As Lefebvre (2004, 73) notes: "Everyday life is modelled on abstract, quantitative time, the time of watches and clocks." This notion of

mechanical time, Lefebvre (2004, 73) argues, “became the time of everydayness, subordinating to the organisation of work in space other aspects of the everyday: the hours of sleep and waking, meal times and the hours of private life, the relations of adults with their children, entertainment and hobbies, relations to the place of dwelling.” The rhythm of work imposed by machinery in production has thus implications for everyday life, as capitalism colonises everyday life by imposing its rhythm on the reproduction of labour-power in everyday life.

When addressing the role of machinery in production, Marx (1999, 230) argues that “fully developed machinery consists of three essential different parts, the motor mechanism, the transmitting mechanism, and finally the tool or working machine.” Rhythm, for Marx (1999, 230), is set by the “motor mechanism that puts the whole in motion.” Marx (1999, 230) distinguishes the cases when the motor mechanism consists of human force, natural elements like water or wind, or a mechanical engine such as a steam-engine, a caloric engine or an electromagnetic machine. Different types of motor mechanisms lead to different rhythms in production, and different degrees of the productivity of labour, which leads to different quantities of necessary labour, thus affecting the surplus that is left after production. For the surplus can emerge by increasing surplus labour (the quantity of time during which labour is performed beyond necessary labour, thus increasing surplus labour in absolute terms) or by decreasing necessary labour (thus in relative terms there is a greater proportion of surplus labour to necessary labour)

The way in which the surplus is used has implications for the socio-economic system. If the surplus is used to merely reproduce the existing socio-economic system, we have what Marx (1978) calls a case of simple reproduction, in a circular process. If the socio-economic system is expanded through reinvestment of the surplus, we have what Marx (1978) calls a case of expanded reproduction, in a spiral, rather than circular, process.

The soil, which Lefebvre (2004, 11) sees as a forgotten element in Marxist analysis, brings another important notion to the analysis, which is rent. Whenever the demand for a commodity increases, the rhythm of production must be increased to satisfy the higher demand.

This is possible if human labour is available for further production. But while capitalists can demand more labour time from workers, and impose different rhythms of human activity, the raw materials taken from nature depend on physical, chemical and biological rhythms which may not allow for an immediate increase of production. Since land and the mineral resources it possesses allow for advantages of production, but cannot be increased at the same rhythm as human labour, a rent emerges for whoever obtains a monopoly on natural resources. The rent corresponds to the difference of productivity between a production process that uses the natural resources produced by nature, and a production process that must proceed without those natural resources.

The increase in the price of raw materials also means that a part of the surplus must be used to finance those raw materials, diverting it away from reinvestment. As Marx (1910) notes when discussing various theories of surplus value, if reinvestment is insufficient for continuing a (spiral or even merely circular) process of reproduction, a crisis arises. Economic cycles of expansion and crisis can then be understood in terms of the divergence between technological, human and natural rhythms. That is, the fact that the production of raw materials depends on the natural rhythm of soil regeneration leads to rent, but also to economic cycles as the surplus is redirected from profits towards rent, as Marx (1910) notes when discussing Ricardo's (1821) theory. But the rhythm of reproduction of labour-power also plays a key role in providing human labour, which may exist in greater quantity as an industrial reserve army of labourers is created, as Marx argues, leading to fluctuations in wages as well. Different rhythms lie thus at the origin of the different components of value addressed by Marx, such as wages, profits and rent.

Rhythmanalysis and technological change

The existence of natural resources also leads to important geographical differences stressed by Lefebvre, which again reinforce the need to introduce the soil, and territoriality in general, into Marxist analysis.

Lefebvre, writing with Régulier on the analysis of Mediterranean cities (Lefebvre and Régulier, 1986), writes that cities with more natural resources tend to use those resources in industries, becoming industrial towns with a uniform rhythm imposed by technology. This uniform rhythm contrasts with the polyrhythmic activity of Mediterranean cities characterised by commercial relations, which entail multiple rhythms connected to various activities that need not all be set by technology. This multiplicity of rhythms leads to a more intense urban life guided by a ritual association that presupposes the repetition of rhythms that generate social ties, and contrasts with the more restricted, disembodied and abstract forms of contractual association.

Lefebvre and Régulier (1986) note that the centre is a producer of rhythms in social time, but Mediterranean cities do not readily accept a political centre, due to the coexistence of other civil centres producing their own rhythms, in polyrhythmia. This means that in industrial towns the role of a strong State is more easily accepted than in Mediterranean cities. But the expansion of the capitalist mode of production, and the associated relations of production, means that the uniform mechanical rhythm starts to disrupt the polyrhythmic activities of various geographical locations.

An important distinction introduced by Lefebvre (2004, 30) is between cyclical rhythms and linear rhythms. A cyclical rhythm is constituted by long and simple intervals at the end of which novelty arises (the return of the cycle is never exactly in the same way), while linear rhythms are repetitive and perpetual. Social organisations become manifest in cyclical rhythms, but the polyrhythmic cycles entailed in natural and social life can often be disrupted by linear rhythms.

The rhythm imposed by technology in industrial towns is a linear rhythm, which interferes with the polyrhythm activity that characterises pre-industrial life, where cyclical rhythms predominate. Marx often stressed how technology influences society, and his contribution is sometimes interpreted as a deterministic one, not only in the sense that the mode of production shapes society, but also in the sense that the specific technologies used in the mode of production shape society. Thus Marx (1950, 147) writes in his 1847 book *The Poverty of Philosophy*, a reply to Pierre-Joseph Proudhon, that “The hand-mill gives you

society with the feudal lord; the steam-mill society with the industrial capitalist." This statement is often interpreted as a form of "technological" (Lawson, 2017), that is, a statement to the effect that technology is the ultimate determinant of society.

It is important to note that this is an early text, and Marx's subsequent analysis of technology in *Capital* is far more nuanced and complex. In any case the influence of technology in shaping the rhythm of industrial society is certainly a topic that is maintained in Marx's mature writings as well. As Lawson (2017) notes, while discussing the contribution of Marx and Martin Heidegger on technology, the speed at which technological innovation takes place also influences society in important ways, not least because often there is not enough time for human beings to learn how to make full use in their social life of the new technological devices that arise. If we want to frame Lawson's (2017) ideas using Lefebvre's rhythmanalysis, we may say that the rhythm of technological innovation is too fast comparatively to the biological and social polyrhythms of nature and society, respectively. This means that as new technological devices arise, there is not enough time for a meaningful enrolment of those technological devices in human societies. The result is a superficial enrolment, which explain why technology is often perceived as a disruptor of the biological and social polyrhythms of human societies, and why modernity is often associated with a more superficial form of life (Lawson, 2017).

Marx offered, however, a more positive outlook to the possibilities of capitalist societies, since Marx believed that humanity does not pose itself problems without developing also the means of solving them. In this regard, Marx believed that the rhythm imposed by technological change in capitalist societies would provide also the possibilities for a more balanced society. Marx believed that the germs for future society are always developed within the actually existing society, and thought that it would be possible to reach a society where the conditions of flourishing of each are the conditions of the flourishing of all, which presupposes the possibility of a polyrhythmic society tending to what Lefebvre calls eurhythmia, rather than arrhythmia.

Concluding remarks

The idea of rhythmanalysis provides an interesting basis for conceptualising Marx's analysis of the labour process, value and technology. Lefebvre, in contrast, uses the idea of rhythmanalysis to extend Marxist theory into the study of space, rather than to interpret Marx's original notions. In so doing, Lefebvre pays little tribute to the precursors of rhythmanalysis, arguing that Pinheiro dos Santos and Bachelard used the word rhythmanalysis without developing its meaning. However, they certainly did more than that, as an analysis of Bachelard's (1963, 127-146) shows, and there is further work to be done regarding the origins of rhythmanalysis in Coimbra's rhythmontology.

It must be noted that Coimbra himself was very critical of Marx, especially of what he believed to be Marx's attempt to quantify value exactly²³, in order to then engage in distribution based on labour time²⁴, while arguing that this is not the best solution.²⁵ What Coimbra criticises, however, is essentially an interpretation of Marx that, albeit it is certainly found in many Marxists, does not correspond to what Marx himself advocated. Marx's criterion of distribution took into consideration the abilities and needs of each person (which are shaped by biological, social and technological rhythms), rather than labour time performed. Distribution in terms of labour time was an idea more akin to authors like Adam Smith. But Coimbra's (2012) comments, made when addressing the problems raised by Bolshevism, continue to be relevant, since they reflect many misunderstandings of Marx's theory that still exist today.

In addition to further work on the origins of rhythmontology, it is also necessary to investigate further how a philosophy of rhythm can shed light on interpreting adequately Marx's analysis of capitalism. Capitalism can be fruitfully interpreted in terms of the imposition of new rhythms on society, disrupting the polyrhythmic activity that

²³ "Marx fragmenta o valor em valor de *uso* e valor de *troca* por uma abstracção, e depois *mede* (?) o valor de troca por o preço de mercado." (Coimbra, 2012, 338)

²⁴ "O que Marx quer é *justificar* com maquinaria cientista a sua revolta contra a injustiça da opressão proletária." (Coimbra, 2012, 340)

²⁵ "A solução é outra, não está na paga de um trabalho, medido com exactidão." (Coimbra, 2012, 340)

characterised pre-capitalist societies. Capitalist relations require that the various objects in space can be conceived of as commodities, ready to buy and sell according to a commercial logic that imposes a different rhythm from the one presupposed in pre-capitalist social relations. The subsequent developments of industry and finance that emerged after the development of a commercial society provide further changes in rhythmic patterns. Marx (1981) studies, especially in volume 3 of *Capital*, a transition from commercial capitalism to industrial capitalism, and subsequently from industrial capitalism to financial capitalism. These transitions are also associated with changes in the production of rhythm, where technological change also plays a key role.

A key insight we can retain from applying a rhythm analytical perspective to Marx's analysis is that the colonisation of everyday life by the rhythms brought by the mode of production leads to the formation of wages, profits and rent. These analytical categories that structure Marx's analysis of capitalism can be more fruitfully understood in terms of the rhythms that lead to their emergence, namely, the biological, social and technological rhythms that govern the reproduction of labour power and the means of production (setting wages and profits), and the physical, chemical and biological rhythms that govern the regeneration of the soil (leading to the emergence of rent). Marx's analysis of the dynamics of capitalism is built upon these categories, bringing historicity to the previous analyses of classical political economists who were, in Marx's days, being replaced by what he called vulgar economists. This means that the rhythm analytical project can be useful not only for extending Marx's analysis, as Lefebvre did, but also for understanding the central categories of Marx's analysis, as argued above.

REFERENCES

- BACHELARD, G. (1949). *La psychoanalyse du feu*. Paris: Galimard.
- BACHELARD, G. (1963). *La Dialectique de la Durée*. Paris: Les Presses Universitaires de France.
- BAPTISTA, P. (2010). *O filósofo fantasma: Lúcio Pinheiro dos Santos*. Pref. Maria Celeste Natário. Lisboa: Zéfiro.

- BRANDÃO, R. (2015). *Húmus*. Lisboa: Relógio D'Água.
- COIMBRA, L. (2004). *Obras Completas Vol. I – Tomo II*. Lisboa: Imprensa Nacional Casa da Moeda.
- COIMBRA, L. (2012). *Obras Completas. Vol. VII*, Lisboa: INCM
- COIMBRA, L. (2014). *Obras Completas Vol. VIII*. Lisboa: Imprensa Nacional Casa da Moeda.
- CUNHA, R.S. (2009). “A Filosofia do Ritmo Portuguesa: Da Monadologia Rítmica de Leonardo Coimbra a Lúcio Pinheiro dos Santos e a Ritmanálise”, in *O Pensamento Luso-Galaico-Brasileiro (1850-2000) – Actas do I Congresso Internacional, Vol. III*. Lisboa: Imprensa Nacional Casa da Moeda.
- CUNHA, R.S. (2010). *O Essencial sobre Ritmanálise*. Lisboa: Zéfiro.
- HARVEY, D. (2006). *Limits to Capital*. London: Verso.
- LAWSON, C. (2017). *Technology and Isolation*. Cambridge: Cambridge University Press.
- LEFEBVRE, H. (1992). *Éléments de Rhythmanalyse: Introduction à la connaissance des rythmes*. Paris: Éditions Sylleps.
- LEFEBVRE, H. (2004). *Rhythmanalysis: Space, Time and Everyday Life*. translated by Stuart Elden and Gerald Moore, with an introduction by Stuart Elden, London and New York: Continuum.
- LEFEBVRE, H. and REGULIER, C. (1986). “Essai de rythmanalyse des villes méditerranéennes”, *Peuples Méditerranéens*. 37, 5-16.
- MARTINS, N. O. (2013). *The Cambridge Revival of Political Economy*. London and New York: Routledge.
- MARX, K. (1999). *Capital*. Oxford: Oxford University Press.
- MARX, K. (1978). *Capital*. Vol. II. Pelican Books, New York, NY, (translated by D. Fernbach), London: Pelican Books.
- MARX, K. (1981). *Capital*. Vol. III. Pelican Books, New York, NY, (translated by D. Fernbach), London: Pelican Books.
- MARX, K. (1910). *Theorien über den Mehrwert, Edited by Karl Kautsky, 3 vols*. J.H.W. Dietz, Stuttgart.
- MARX, K. (1950). *Misère de la philosophie : en réponse à la “Philosophie de la misère” de M. Proudhon*. Paris, A Costes.
- PASCOAES, J. Teixeira de (1984). *São Paulo*. Lisboa: Assírio e Alvim.
- PASCOAES, J. Teixeira de (1991). *Arte de Ser Português*. Lisboa: Assírio e Alvim.
- PASCOAES, J. Teixeira de (2002). *Poesia de Teixeira de Pascoaes: Antologia organizada por Mário Cesariny*. Lisboa: Assírio e Alvim.
- RICARDO, D. (1821). *On the Principles of Political Economy and Taxation*. London: John Murray.
- VILHENA, A.M. and MANO, M. E. M. (1994). *Raul Brandão – Teixeira de Pascoaes: Correspondência*. Lisboa: Quetzal.