

Value Theory Reconsidered in the Light of Recent Debates,
with Application to the Nature of Value, the Composition of
Capital, and the Transformation Problem

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This thesis is a contribution to recent debates on the labour theory of value (LTV). It builds upon two distinctive features of the LTV; first, the categories used in the inquiry are historically determined modes of existence of capitalist social relations; second, it rejects equilibrium as the organizing principle of the investigation. Six issues are analysed in the light of these elements and the previous literature. First, the relationship between dialectical logic and the LTV is addressed through an evaluation of the 'new dialectics'. This approach to Marx's method understands the LTV as a systematic dialectical theory, whose aim is the reconstruction in thought of the main characteristics of capitalism. Second, the relationship between labour and value is assessed through the real processes that determine value and price, the normalization, synchronization and homogenization (NSH) of labour. Three well-known views of the LTV are assessed in this light; the traditional, the Sraffian, and the 'abstract labour' view.

Third, the monetary reform devised by the 'Ricardian socialist' economists in the 19th Century, which was centred around the institution of a 'labour-money'. This plan, and Marx's critique of it, are investigated from the viewpoint of the NSH of labour. Fourth, the distinction between the technical, organic and value compositions of capital (TCC, OCC and VCC). The evolution of Marx's use of these terms is reconstructed, and their place in his analysis is brought to light. Fifth, the transformation of values into prices of production is reinterpreted in the light of the distinction between OCC and VCC. This view of the transformation is contrasted with the concerns of the critics of Marx's approach. Sixth, the contribution of the 'new approach' to the transformation problem to the LTV is evaluated in detail.

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INTRODUCTION

This thesis builds upon the labour theory of value (LTV) to analyse the relationship between labour, value, money and price at increasing levels of complexity. This investigation, and the conclusions drawn from it, are predicated upon two analytical principles; first, that the categories of value analysis should be treated as historically determined modes of existence of capitalist social relations; second, that equilibrium should not be one of the organizing principles of the inquiry. These features are essential, because they are at the core of Marx's theory of value, and distinguish it from other views. In addition, they are useful for the critique of some well-known

conceptions of the labour theory of value. Broadly speaking, these conceptions are rejected because of their failure to build upon some of the most distinctive aspects of Marx's critique of political economy, and because of the conflation of some of its features with those typical of Ricardo's approach, or even the neoclassical.

This thesis has six chapters. Each of them builds upon the previous literature to present a distinctive contribution to the matters being discussed, and they have been structured in such a way that each chapter can stand alone as a contribution to the topic covered. The first examines the relationship between dialectical logic and the labour theory of value. This issue has been the subject of dispute for several decades; this chapter addresses it through a critical evaluation of the contribution of the so-called 'new dialectics'. This is a relatively new approach to Marx's method, whose distinguishing feature is the claim that the labour theory of value should be seen as a systematic dialectical theory. According to the 'new dialectics', the principal objective of this theory is the reconstruction in thought of the main features of the capitalist mode of production. To achieve this, the labour theory of value should be developed in accordance with the rules of dialectical logic.

The contribution of the 'new dialectics' is important, first, because of the rigour with which it addresses the complex issues of the structure and logic of the labour theory of value and, second, because of the emphasis which it places upon the relationship between the dialectical method and economic analysis. In this respect, the intellectual connection between Hegel and Marx is essential, and the careful re-evaluation of this link is one of the most important aspects of the 'new dialectics'. However, this line of thought is still in its infancy, which makes it difficult to identify the essential elements of this

approach and distinguish it from previous analyses. Therefore, the contribution of this chapter is two-fold; first, it presents the argument for the 'new dialectics' thoroughly and systematically, which has not been done in the past. Second, it briefly considers the main problems with this approach to Marx's method.

The second chapter investigates the nature of value. In contrast with most previous studies, that concentrate either on the logical derivation of the concept of value or the calculation of values, this chapter argues that the relationship between labour and value is best understood through the identification of the real processes that underlie the determination of value and its expression as price. It is shown that commodity values find their expression as prices as the labours that have produced them go through three distinct real processes, the normalization, synchronization and homogenization of labour. Their identification and description is one of the most important contributions of this thesis.

The processes of normalization, synchronization and homogenization of labours provide a useful framework for the study of competition between capitals of the same branch of industry, and for the analysis of technical change. In addition, they are used in the assessment of the relationship between value and price, and in the development of the basis of a distinctive approach to the quantitative determination of value. The latter is grounded upon the concepts of living and virtual labour. Their definition departs from the distinction between the labour time socially necessary to transform the inputs into the output, and the labour time socially necessary to reproduce the inputs.

This approach to value theory is not conventional, but it is useful and illuminates some aspects of the relations between

labour and value that are often neglected. Therefore, it can be used to assess the cogency of other, more traditional views of the labour theory of value. This chapter considers in detail three of the best-known views of this theory; the traditional, developed by Maurice Dobb, Ronald Meek and Paul Sweezy, the relatively more modern approach of the Sraffian school, and the 'abstract labour' view, developed in the 1970s by writers inspired by the Soviet economist Rubin.

The third chapter assesses the monetary reform proposed by the so-called Ricardian socialist economists in the early and mid-19th Century. The most important aspect of this reform is the institution of a 'labour-money', a form of money whose standard is the hour of labour, instead of the pound sterling or whatever. According to its proponents, this form of money would lead to a crisis-free economy, whose development would no longer be limited by constraints stemming from the monetary sphere. The critique of this idea is important, because any discussion of value and money based on the labour theory of value has to come to terms with the apparently very reasonable concept of labour money.

In spite of the frequent references to the labour-money scheme in the literature, this chapter is innovative in two ways; first, because it systematically evaluates the case for a labour-money through the works of the utopian socialist John Gray; second, the careful scrutiny of Marx's critique of the labour-money scheme brings to light some important aspects of Marx's own theory of value and money. In addition, this study lends itself to the analysis of the functions of money and the role of money as the general equivalent.

The fourth chapter analyses a complex issue, that has been the source of (much) confusion and (insufficient) debate in studies of the labour theory of value: the distinction between the technical, organic and value compositions of

capital. Even though this seems to be a rather abstract matter, its importance is undeniable. Marx employs the composition of capital, and the concepts which represent it, in his analyses of the use of machines in industry, accumulation of capital, and the distinction between the various types of rent, not to speak of the role of the organic composition of capital in the transformation of values into prices of production and the derivation of the law of the tendency of the rate of profit to fall.

This chapter begins with a brief survey of the different interpretations of these concepts in the literature, which shows that their meaning has been understood in widely different manners. This provides the background for the reconstruction of the evolution of Marx's own use of these terms. This helps bring to light not only the precise meaning of the technical, organic and value compositions of capital, but also their respective places in Marx's analysis. It is shown that the progressive introduction of these terms is a symptom of the increasing refinement of Marx's own perception of certain theoretical problems, and that they enable him to clarify the presentation of his own point of view.

The fifth chapter applies the previous analysis of the composition of capital to a re-interpretation of Marx's transformation of values into prices of production. The approach developed in this chapter elaborates upon Ben Fine's (1983) seminal contribution, which argues that the distinction between the organic and value compositions of capital is central for the correct interpretation of Marx's transformation. This approach is in sharp contrast with traditional views of the transformation problem, and it shows that much of the criticism that Marx's transformation has received is misguided; quite often, these critiques derive from the analysis of a different set of problems, that may have little in common with Marx's own concerns and

the issues that he addresses in his own study of the relationship between values and prices of production.

The innovative approach to the transformation developed here argues that, once the problem in which Marx is interested is adequately defined - namely, the effect on prices of the different proportions of labour power and means of production employed by each capital, irrespective of the value of the means of production or labour power - it becomes clear that Marx is not primarily concerned with the calculation of the vector of prices of production as most of the literature has argued. On the contrary, his main objective in the transformation is the demonstration that profit is a form of surplus value, and that price is a form of value. As a result, the two aggregate equalities, between surplus value and profit, and value and price, naturally follow.

Finally, the sixth chapter critically analyses one of the best-known modern analyses of the labour theory of value, recently put forward by Duncan Foley and Gerard Dumenil. Their 'new approach' to the transformation problem is based upon a distinctive interpretation of the relationship between labour, value and price, and it deserves careful scrutiny. Even though this perspective has become increasingly popular, the analysis of its premises has, for the most part, escaped the attention of the literature. This chapter addresses the 'new solution' to the transformation problem as the means to evaluate Dumenil and Foley's contribution to value theory. Three innovative elements of the 'new solution' are investigated in detail; the emphasis on the net product, and the definitions of value of money and value of labour power.

One of the most important conclusions of this chapter is that, even though Dumenil and Foley's approach offers important contributions to the labour theory of value, the

method associated with this approach is open to question. The 'new approach' has an *ex post*, circulation-based conception of value, money and price. Because of this, it cannot unambiguously distinguish between variables such as value and surplus value, and their forms of expression such as price and profit; this makes it difficult to use this approach to make further progress, for example in the analysis of the profit rate or economic crises. Nevertheless, it has the merit of, at least implicitly, recognizing that equilibrium is an unwarranted context for value analysis, and that this is an inadequate organizing principle for inquiries based on the labour theory of value.

Even though much of the material covered in this thesis has been worked over many times before, and has benefitted from the contribution of illustrious scholars, this study has much to add to the current literature. It contributes not only by introducing new elements and an innovative perspective into some of the most important debates on the labour theory of value but, perhaps even more importantly, by pursuing the logic of Marx's own methodology consistently and rigorously from one chapter to the next, and in the thesis as a whole.

1 - THE 'NEW DIALECTICS' AND THE LABOUR THEORY OF VALUE

This chapter discusses dialectics, applied as the method underlying the labour theory of value. This is a highly abstract issue, but it is essential for the analysis of labour, value, and price in the forthcoming chapters. Instead of surveying the vast literature on dialectical logic or the extensive debate concerning Marx's method in *Capital*, this chapter addresses these issues through the analysis of the contribution of the so-called 'new dialectics' (Arthur, 1993b). This relatively new interpretation of the method of the labour theory of value adds much to the previous literature, but still needs to be adequately systematized and critically examined.

Even though the roots of the 'new dialectics' can be traced back several decades (at least to Lukacs' work in the early 1920s; see, for example, Lukacs, 1971 [1922]),¹ it was not until the late 1980s that there was a consistent effort to consolidate and expand this body of knowledge. The distinguishing features of this approach are the emphasis on the relationship between Hegel and Marx, and the attempt to read Marx's works with a view to Hegel's method. This does not imply that Marx's critique of Hegel's idealism is ignored (even though Marx himself never fully developed it), nor that there is an attempt to produce a synthesis of Hegel's dialectics with Marx's. On the contrary, the 'new dialectics' emphasizes the need to re-interpret Hegel's work with Marxian eyes; on this basis, new insights are sought with regard to the structure of Marx's own work, especially *Capital*.

¹ References such as Lukacs (1971 [1922]) indicate that the work was originally published in 1922, but the reference is from the 1971 edition.

The early stage of elaboration of the 'new dialectics' makes it difficult to pinpoint the main elements of this line of thought and determine the body of work that belongs to it. In spite of this, in what follows an interpretation of the 'new dialectics' is proposed, which tries to overcome these problems. To do this, this chapter draws heavily upon works by Fred Moseley, Patrick Murray, Ali Shamsavari and Tony Smith (even though their writings are not necessarily homogeneous in every respect), and substantiates their claims by recourse to earlier writings by Karel Kosik, E. V. Ilyenkov, Jindrich Zeleny and others.

This chapter is divided into three sections. The first discusses the case for the understanding of the labour theory of value as a systematic dialectical theory, which aims at the reconstruction in thought of the essential categories of the capitalist mode of production. This is one of the main claims of the 'new dialectics', and its implications need to be investigated in detail. The second analyses one specific issue, the starting-point of *Capital*. The reasons why Marx chose the commodity as the starting-point of the book, and the status of the commodity at this stage in the analysis, are questions that have been discussed for decades. This section will spell out the perspective of the 'new dialectics', that sheds new light upon these issues. Finally, the third section summarizes the most important claims of the 'new dialectics', and critically evaluates their consistency and persuasiveness.

1.1 - THE LABOUR THEORY OF VALUE AS A SYSTEMATIC DIALECTICAL THEORY

There are widely different interpretations of the method of analysis appropriate to the labour theory of value (see, for example, Althusser, 1969 [1965a], 1970 [1965b], Banaji, 1979, Baran and Sweezy, 1966, Carver, 1980, Dobb, 1940, Engels, 1981b [1895], Mandel, 1968, Meek, 1956a, Moseley,

1993a, Pilling, 1980, Roemer, 1986, Smith, 1990, and Sweezy, 1968 [1942]). More traditional views, such as Engels' logico-historical approach, have been popular for decades (for a critique, see Shamsavari, 1991). Althusser's structuralism has also been influential, especially between the late 1960s and the mid 1970s (see, however, Hunt, 1984, and van Parijs, 1979), and the so-called Analytical Marxism is now in vogue in the US and other countries (the claims of Analytical Marxists are confronted by Lebowitz, 1994a and Smith, 1993a). The controversies sparked by different views of Marx's method have played a significant role in the development of the labour theory of value, and there are reasons to believe that they will be at least as lively in the future.

It is doubtful, however, that these disputes would have become as far-reaching, and developed such a prominence, if Marx had been less cryptic in his writings, especially *Capital*, with regard to the method used in his own analysis. In the postface to the second edition of Volume 1, for example, Marx notes that 'the method employed in *Capital* has been little understood' (K1,² p.99). This conclusion is confirmed by the widely different opinions of translators and reviewers of the book. Unfortunately, Marx avoids a more detailed analysis of the subject, and modern readers are left unsure about Marx's view of his own method.

This reticence can be explained in at least two (not mutually exclusive) ways. For Arthur (1993a, pp.63-64), this is due to Marx's lack of clarity on the matter, especially with regard to his own relation to Hegel. For Smith (1993b, p.47), Marx deliberately downplayed the method of *Capital* to

² In this thesis *Capital* (Marx, 1976 [1867], 1978b [1884], 1981b [1894]) is referred to as K, the *Theories of Surplus Value* (Marx, 1978a [1956], 1969 [1959], 1972 [1962]) as TSV, the *Contribution to the Critique of Political Economy* (Marx, 1987 [1859]) as CCPE, and the *Grundrisse* (Marx 1981a [1953]) as GR. All italics in quotations are original unless otherwise stated.

make the book more accessible to his working-class readers. Therefore, Smith's conjecture indicates that the tension between Marx's desire to find an attractive form for the book, and the intrinsic complexity of its content, led him to neglect the explicit consideration of methodological issues and, perhaps, even to include more historical material than would be strictly necessary (it is known that some 'extra' historical analysis was included due to Marx's prolonged periods of illness, which prevented him from working on more abstract matters; see Murray, 1988, and Rosdolsky, 1977 [1968]).

Whilst it is relatively easy to accept Smith's position, especially in view of some of Marx's letters and the Preface to the French edition of *Capital 1*,³ Arthur's argument demands more careful scrutiny. If it is true that Marx was unclear about important methodological issues affecting his own work, especially the relation of his own method with Hegel's, the consequences would be far-reaching for modern interpretations of the labour theory of value. This thorny issue cannot be discussed here. The approach developed in this chapter presumes that it is possible to interpret the labour theory of value as a systematic dialectic theory. This perspective emphasizes the relationship between Marx's method and Hegel's dialectics, which has recently been the subject of renewed attention from distinct perspectives.⁴

³ In a letter to Engels in December 8, 1861, Marx says that his new book (*Capital*) 'will nonetheless be much more popular and the method will be much more hidden than in part 1 [the *Contribution*]' (quoted in Murray, 1988, p.109). In the Preface to the French edition of *Capital 1*, Marx approves of the transformation of his book into a serial, in which case 'the book will be more accessible to the working class, a consideration which to me outweighs everything else.' (K1, p.104).

⁴ The Hegel-Marx connection was regarded as highly important by Lenin (1972 [1929]) for whom, as is well-known, '[i]t is impossible completely to understand Marx's *Capital*, and especially its first chapter, without having thoroughly studied and understood the whole of Hegel's *Logic*.' (p.180). He also stated (p.319) that '[i]f Marx did not leave behind

This approach does not imply that other interpretations of the labour theory of value should be rejected, nor does it claim that every aspect of *Capital* (or of Marx's earlier works) is a necessary step for the dialectical reconstruction of the capitalist mode of production in thought. However, it contends that the main features of *Capital*, and its inner logic as a whole, can be understood from this point of view (see Smith, 1993b, p.25).

When considered as a systematic dialectic theory, the labour theory of value is a theory of categories. These categories belong to distinct analytical levels, some simpler and relatively abstract (value, labour power, etc.), and others more complex and concrete (market price, productive labour, and so on).⁵ For Smith (1993a, p.115), a theory follows a dialectical logic if:

him a "Logic" (with a capital letter), he did leave the logic of *Capital*, and this ought to be utilised to the full in this question. In *Capital*, Marx applied to a single science logic, dialectics and the theory of knowledge of materialism ... which has taken everything valuable in Hegel and developed it further.' The relationship between Hegel and Marx is discussed by Banaji (1979), Fracchia and Ryan (1992), Ilyenkov (1982 [1979]), Moseley (1993a), Murray (1988, 1993), Pilling (1980), Rosdolsky (1977 [1968]), Shamsavari (1991), Smith (1990, 1993a, 1993b) and Zeleny (1980 [1972]); for a different opinion, see Colletti (1973 [1969]).

⁵ Marx uses the term 'concrete' in two distinct circumstances. First, to distinguish the actual from the conceptual and, second, to distinguish, within the sphere of the conceptual, concepts that are more or less determinate in thought. The latter meaning is used here; the former is used below; the context should make the meaning of the term unambiguous. By the same token, the term 'abstract' also has two different meanings: first as an empty, simple or deficient concept, poor in determinations and alienated from concrete reality; second, as the concept itself, that is determined through reasoning and plays a necessary role in the identification of the essence of things (see Carver, 1980, p.199, Echeverria, 1978, p.205, and Murray, 1988, p.115).

(a) categories that articulate simple and abstract social structures are ordered prior to categories that define more complex and concrete structures and (b) each category fixes a structure that incorporates the structures presented in the prior categories and in turn is incorporated in the structures fixed by subsequent categories. In this sense early categories are principles for the derivation of later ones.

For the 'new dialectics', scientific investigation should be organised around the construction of organized systems of categories, because thought cannot immediately apprehend the complex determinations of the concrete. The concrete is complex for two reasons; first, because the form of appearance of the phenomena does not immediately reveal their essence, or inner relations.⁶ For Hegel (1991 [1830], 1993 [1812-16]), the appearance is the necessary form of manifestation of the essence because the essence has no immediate existence. As the essence can appear only as phenomenon, its form of manifestation simultaneously conceals it. The contradiction between immediacy and reflection that is intrinsic to the essence implies that the reality is more than a collection of sensual phenomena; on the contrary, it is the unity of the essence itself and its forms of appearance.⁷

However, this is not the only justification for the above stance. The second reason why the concrete is complex is that nothing exists in isolation but only in a system with other things. In other words, the concrete is a complex whole, and it has organic unity. Despite the fact that this

⁶ Hegel and Marx use the term phenomenon for the merely apparent, that has no relation with the real, and for the visible side of the essence (Dussel, 1988, p.349). The latter is the sense of interest in this chapter.

⁷ See Oakley (1984, p.151). It follows that, for Hegel, laws derived from the immediate appearances (empirical regularities) lack explanatory power, because they do not contain the proof of their objective necessity.

system is logically prior to each particular thing, it does not appear as such. The only way to recognize that each thing is an element (moment) of a concrete system of interacting things, or a concrete manifestation of a system of relations, is through the progress of scientific analysis from the abstract to the concrete, or the step-by-step logical combination of particular definitions into an overall picture of reality (see Ilyenkov, 1982 [1979], p.57, and Murray, 1993).

Science is not, therefore, merely the work of piercing through the externally given form of appearance to reveal the underlying essence. There is another side to it: it must also show why the appearances belong to, and are a necessary aspect of, the essence, which can be done only through the identification of the mediations whereby the essence of phenomena are expressed through their form of appearance:

The concrete and material has a depth level underlying its surface level of appearances. The task of thought is first to pierce through the appearances to that depth level ... and then to proceed to the mediations that connect the depth level with the given appearances. To fulfill this task it is not sufficient for thought to assert its independence; it must assert its primacy over the appearances generated by the real process. A dialectical reconstruction of categories allows for this ... [Hence, the] intelligibility of the concrete and material can only be grasped through asserting the priority of the thought process over how the concrete and material is given in appearances. (Smith, 1990, p.37, emphasis omitted; see also Pilling, 1972, and Smith, 1993a, p.78).

Therefore, the concrete understanding of the relationship between essence and appearance can be achieved only through a two-way process; first, the essence should be grasped by means of an analysis that departs from the appearance;

second, the intrinsic relationship between the form of appearance and the essence should be accounted for. As a result, the features of the appearance are explained by virtue of the underlying essence, and the reality is recognized as a complex logical figure which comprises the essence, the appearance which reflects it, and the form of their necessary interdependence.⁸ For the 'new dialectics', this is precisely the work that Marx sets out to do in *Capital*. With this aim he took over Hegel's dialectical logic, modified it, and developed his own method for the systematic reconstruction in thought of the essential categories of the capitalist mode of production.⁹

The soundness of this method and the validity of its results are contingent upon two requirements. First, the contradictions in the simpler concepts should be the source of the more complex ones. However, the latter should not reject the former; instead, the more complex forms of the concept should reveal the inner potential of the simpler

⁸ See Dussel (1988, p.242). This approach may be used to shed new light on the problems in Ricardo's value theory, because it shows that the ability to identify the essence of value is insufficient. One must also show why the essence appears as it does (in this case, why and in which circumstances does labour appear as value; see Fine, 1982, 1986a, and Pilling, 1980). The Ricardian socialists' idea that a 'labour-money' would do away with economic crises suffers from a similar inability to link essence with appearance (see chapter 3). Marx's account of the value-form, on the contrary, not only identifies the essence of value, but also explains its (changing) form of appearance (see chapters 2 and 5).

⁹ According to Smith (1993a, p.37), Marx's aim in *Capital* is 'to trace "the intrinsic connection existing between economic categories or the obscure structure of the bourgeois economic system ... [to] fathom the inner connection, the physiology, so to speak, of the bourgeois system."' [TSV2, p.165] This is nothing more than the Hegelian goal of reconstructing the world in thought through working out a systematic theory of categories' (emphasis omitted). See also pp.15-20 and K1, pp.90, 92, K3, pp.428, 817, 956, Arthur, 1992, Banaji, 1979, pp.19-20, Dussel, 1988, p.242, Kosik, 1976, pp.2-3, and Murray, 1988, pp.40-45, 158-59).

ones in a more concrete context. Second, each step of the analysis must be developed with the utmost care and precise attention to detail. Every concept or category should be introduced by means of the procedure outlined above; in particular, no assumption should be made with regard to the structure of the inquiry, the role of each concept in it, or their interrelations, unless it derives from the process of unfolding of new concepts from more abstract ones. In addition, the analysis should take into account the fact that, since all concepts are linked, the sublation¹⁰ of a concept by others (or the sublation of a form of the concept by a more complex one) often changes the meaning of other concepts.¹¹

This process of systematic evolution in the structure of the analysis plays a major role in the determination of which contradictions or concepts should be developed, or unfold, at any given point. Because of this intrinsically dynamic framework, concepts at distinct levels of abstraction always coexist in dialectical analyses. Moreover, the evolution of the reconstruction of the concrete in thought depends upon the development of the contradictions *within* concepts and

¹⁰ The word 'sublate' is used as the English equivalent of Hegel's 'Aufhebung' (to preserve the previous category while clearing away and substituting it). 'Supersede' and 'suspend' have also fulfilled a similar role in the literature; see Hegel (1991 [1830], pp.xxxv-xxxvi and 154).

¹¹ This issue is discussed further by Arthur (n.d.), Engels (1981a [1894]), Murray (1988, 1993), Shamsavari (1991), and Smith (1990, 1993a, 1993b). This has not escaped the attention of the more careful analysts of Marx's work. For example, in their study of the composition of capital, Groll and Orzech (1989a, p.57) point out that '[t]he basic difficulty in fully grasping the meaning and significance of the composition of capital is rooted in Marx's methodological approach to his economic research. Being strongly influenced by Hegel's method, Marx's concepts have a dynamic meaning in their appearances and transformations. His categories rarely have the straightforward, unequivocal meanings so familiar to, and expected by, the modern economist. On the contrary, they usually have multiple, sometimes complementary and sometimes contradictory, meanings.'

between interrelated concepts. Unless these steps are followed at every stage, the analysis becomes prone to logical faults, which may eventually handicap its development and lead it astray.

As the investigation progresses, successive levels of abstraction are bridged, and the analysis encompasses more and more concrete features of reality; in other words, it gradually reconstructs the concrete:

Ascending from the abstract to the concrete is a movement for which every beginning is abstract and whose dialectics consists of transcending this abstractness ... Ascending from the abstract to the concrete ... is the dialectics of the concrete totality in which reality is intellectually reproduced on all levels and in all dimensions. The process of thinking not only transforms the chaotic whole of ideas into a clear whole of concepts; but in this process, the whole itself is outlined, determined and comprehended, too. (Kosik, 1976, p.15; see also GR, pp.100-02)

An inquiry which follows this approach can never be completed, because all concepts are intrinsically contradictory and subject to transformation and greater determination. This is not a defect of this method but, rather, one of its virtues, because it recognises that the elements and properties of reality are endless. However, it should be noted that the reconstruction in thought of the categories that capture the essential features of the real world is quite distinct from an attempt to bridge the gap between thought and reality, and present an all-encompassing explanation of certain aspects of life. This would be a self-defeating exercise, because thought is unable to overcome the intrinsic autonomy of the material world, regardless of the complexity of the analysis:

The dialectics of the concrete totality is not a method that would naively aspire to know all aspects of reality exhaustively and to present a "total" image of reality, with all its infinite aspects and properties ... Rather, it is a theory of reality as a concrete totality. This [is a] conception of reality, of reality as concreteness, as a whole that is structured (and thus is not chaotic), that evolves (and thus is not immutable and given once and for all), and that is in the process of forming (and thus is not ready-made in its whole, with only its parts, or their ordering, subject to change). (Kosik, 1976, p.19)¹²

1.2 - THE STARTING-POINT OF 'CAPITAL'

The process of reconstruction of the reality in thought requires the identification of some starting-point for the analysis. This is potentially the single, most abstract and fundamental concept, that synthesizes the wealth of the appearances. These characteristics make this concept a cell-form, whose gradual unfolding leads, through a series of mediations, to the reconstruction of the concrete. The identification of this concept is the *salto mortale* of Marx's method, because the failure to select the correct starting-point will prevent the analysis from accounting for important aspects of reality or lead to inconsistency. It was seen above that a dialectical theory of categories necessarily departs from the real and concrete; however, as the immediate perception of the whole does not lead to knowledge of its inner structure, the sensual experience of the concrete needs to be theorized. Therefore, the

¹² See also Fine (1982, p.12) and Reuten (1993). In other words, the aim of the exercise is not merely an asymptotic reconstruction of the real *per se*, but to use the knowledge thus obtained as a means to intervene in reality. In this sense, Marx's dialectics is a philosophy of praxis (see Elson, 1979b, and Sanchez Vazquez, 1977 [1966]).

starting-point is an element of reality, but a very specific one, whose identification is already the first result of the application of the dialectical method (see Arthur, 1992, and Smith, 1990).

Marx could not begin *Capital* with the analysis of value (even though this is the measure of capitalist wealth), nor with the dissection of the concept of capital (although this is the subject of the book and the most important relation of production in capitalism), because these concepts cannot immediately be grasped from the inspection of reality; they need to be developed on the basis of other, relatively simpler concepts. It took Marx many years of study, and several attempts, until he identified the commodity as the adequate starting-point for his book.¹³ The commodity was chosen because it is the immediate, elementary, and actual unit of wealth in capitalism. As this is a legitimate cell-form, the unfolding of the contradictions in the concept of commodity allows concepts such as value and capital to be introduced into the analysis (see GR, p.100-02, Marx, 1989b [1930], p.544, and Campbell, 1993).

The fact that commodities exist in several modes of production does not disqualify this concept as the adequate starting-point for a reconstruction of capitalism in thought. However, it indicates that in Marx's analysis this term has two distinct meanings; first, it stands for commodities as the product of commodity-producing labour in general, a form that has existed for millennia and is one of the historical premises of capitalist production. Second, it means commodities as the product of specifically capitalist relations of production. The difference between these meanings of the term lies on the fact that, under previous modes of production, the production of commodities does not

¹³ The process of identification of the commodity as the starting-point of *Capital* is retraced in Echeverria (1978, 1980). For a different opinion, see Carver (1980); see also Elliott (1978-79) and Evans (1984).

exist for itself, while in capitalism it acquires independence and necessity.¹⁴

The choice of the capitalist commodity as the starting-point of *Capital* means that the latter is the most important meaning of this concept in Marx's work. As the commodity which is the starting-point belongs to the mode of production that is to be explained, this is a legitimate concept, that expresses a concrete universal, and not an abstract universal or a general notion. The distinction between concrete and abstract universals is very important, and needs further scrutiny.

Abstract universals are determined through empiricist analysis; they are formal abstractions based on superficial resemblance, and they directly comprehend all particulars without exception (otherwise they would not be universals). In other words, they are determined through the investigation of the external relations, or through abstraction *from* the phenomena concerned (Gunn, 1992, p.23). From the standpoint of dialectics, abstract universals are useful but provide little scientific understanding, because they cannot account for the specificities of the objects that they represent.¹⁵

¹⁴ See chapter 2. For Marx, '[t]he commodity as it emerges in capitalist production, is different from the commodity taken as the element, the starting-point of capitalist production. We are no longer faced with the individual commodity, the individual product. The individual commodity, the individual product, manifests itself not only as a real product but also as a commodity, as a *part* both really and conceptually of production as a whole. Each individual commodity represents a definite portion of capital and the surplus value created by it.' (TSV3, pp.112-13)

¹⁵ '*Production in general* is an abstraction, but a rational abstraction in so far as it really brings out and fixes the common element and thus saves us repetition. Still, this *general* category, this common element sifted out by comparison, is itself segmented many times over and splits into different determinations. Some determinations belong to all epochs, others only to a few. {Some} determinations will be shared by the most modern epoch and the most ancient. No

Real understanding requires concrete abstraction, because science deals with the actual, and the actual is complex and determinate. Concrete abstractions express the objective essence of the phenomenon. They are determined through abstraction *in and through* the phenomena, and have a genetic relation with the particulars. As such, concrete abstraction points towards the internal relations of the subject; for this reason, it allows the identification of the cell-form of the particulars. The cell-form should be understood in the double sense of expressing the specific concrete content of the particulars, or their most general characteristic, and of expressing not some arbitrary form of development of the object, but only that which constitutes the actual foundation from which the particular forms develop:

A concrete universal concept comprises in itself "the wealth of the particulars" in its concrete definitions - in two senses ... First, a concrete universal concept expresses in its definitions the specific concrete content (the internal law-governed structure) of a single, quite definite form of the development of an object under study. It comprises in itself "the whole wealth" of the definitions of this form, its structure and its specificity. Second, it does not express in its definitions some arbitrarily chosen form of development of the object as a whole but that, and only that, form which constitutes the really universal basis or

production will be thinkable without them; however ... just those things which determine their development, i.e. the elements which are not general and common, must be separated out from the determinations valid for production as such, so that in their unity - which arises already from the identity of the subject, humanity, and of the object, nature - their essential difference is not forgotten.' (GR, p.85; the term in braces was added by the editors.)

foundation on which "the whole wealth" of other formations grows. (Ilyenkov, 1982 [1979], pp.84-85)¹⁶

The fact that the categorial reconstruction of the concrete is predicated upon the existence of the developed system implies that the main objective of *Capital* is the reconstruction of the capitalist mode of production in its actuality, and not its historical genesis. Therefore, the logical development of the concepts discloses not the actual process of becoming of this system (its historical genesis), but the inner logic of its development (which helps explain why *Capital 1* does not start with the analysis of primitive accumulation nor commercial capital).¹⁷

As the stages of theory do not have to coincide with those of history, *Capital 1* can start with the analysis of the commodity, without any implication, for example, that 'simple commodity production' historically preceded capitalism (as is presumed by Engels, 1981b [1895]; for a critique, see Anderson, 1983, Shamsavari, 1991, and Weeks, 1981). On the contrary, the beginning of *Capital 1* implies that the production of commodities is the most abstract

¹⁶ See also pp.48, 76-83 and Murray (1988, pp.121-22, 143-44). For a comparison between dialectics and formal logic, that works with abstract universals, see Gunn (1992) and Kay (1979). For a critique of the method of classical political economy, that is based upon the search for abstract universals, see TSV2, pp. 106, 164-65, 191, Dussel (1988, p.209), Murray (1988, pp.117-23, 144), Pilling (1980, pp.25-28 and 72-74) and Shamsavari (1991, pp.87-90).

¹⁷ '[I]t is only [the] logical development of categories that is guided by the relation in which the elements of the analysed concreteness stand to one another in the developed object, in the object as the highest point of its development and maturity, that discovers the mystery of the genuine objective sequence of the formation of the object, of the moulding of its internal structure ... Logical development of categories in science contradicts temporal sequence exactly because it corresponds to the genuine and objective sequence of the formation of the concrete structure of the object under study. Herein lies the dialectics of the logical and the historical.' (Ilyenkov, 1982 [1979], pp.218, 221)

feature of capitalist production.¹⁸ The fact that the starting-point is a capitalist commodity has, of course, no bearing upon the existence or the importance of commodity production in other modes of production; more generally, it suggests that the argument and conclusions of the book do not have immediate application for modes of production other than capitalism (see Arthur, 1992, p.xiii, and Smith, 1993a, p.102).

It follows that, even though large passages of *Capital* contain historical analysis, the ordering of the categories in the book is essentially logical, and the role of historical investigation is of secondary importance:

It would ... be unfeasible and wrong to let the economic categories follow one another in the same sequence as that in which they were historically decisive. Their sequence is determined, rather, by their relation to one another in modern bourgeois society, which is precisely the opposite of that which seems to be their natural order or which corresponds to historical development. (GR, p.107)¹⁹

Therefore, the commodity with which *Capital* begins is a capitalist (and not historically general) product, and a

¹⁸ *Capital 1* begins (p.125) with the following statement: 'The wealth of societies in which the capitalist mode of production prevails appears as an "immense collection of commodities"; the individual commodity appears as its elementary form. Our investigation therefore begins with the analysis of the commodity.' The expression 'in which the capitalist mode of production prevails' is essential, for it situates the concrete from which the analysis departs.

¹⁹ In other words, 'the method of rising from the abstract to the concrete is only the way in which thought appropriates the concrete, reproduces it as the concrete in the mind. But this is by no means the process by which the concrete itself comes into being.' (GR, p.101). See also p.103, K3, p.400, Banaji (1979, pp.29-30), Murray (1988, p.182), Shamsavari (1991, pp.73-75), Smith (1990 and 1993a, p.102), and Zeleny (1980 [1972]). For a different view, see de Brunhoff (1973a) and Milonakis (1990a, 1990b).

concrete universal (and not an abstract universal or general notion). In other words, the starting-point of *Capital* is the concrete, but the concrete as a category unifying all particular forms which it may assume in reality. Because of this, the commodity does not represent any particular good, but the manifold of commodities that are produced and exchanged under capitalism. However, this raises one problem; if *Capital* departs from the capitalist commodity, and if the most important objective of the book is the reconstruction of capitalism in thought, how can Marx's method be distinguished from Hegel's, where the last category supposedly validates the choice of the first and, given the first category, the last logically follows?

For the 'new dialectics', the main difference lies in the criteria for the verification of their theories. Hegel's system is idealist, because it cannot be verified outside the sphere of ideas, while the results of Marx's investigation are validated through material praxis. Therefore, the adequacy of the (capitalist) commodity as the starting-point of *Capital* is granted not only by the power of the labour theory of value to reconstruct the dynamics of capitalism on its basis, but also by its capacity to identify the fundamental relations of this system, and the limits of capitalism's ability to accommodate economic and social change.²⁰

Once the concept of commodity is adequately grasped, the labour theory of value uses it to construct the concept of capital, and many others. The construction of these concepts is necessarily a gradual process, with several mediations

²⁰ 'The "distance between thought and reality" is, of course, bridged by thought in works of theory, since the formulation of concepts in social science comes by definition through thinking. Whether this distance is truly bridged or not, is, as Marx puts it, to be judged in practice, in "the general process of social, political and intellectual life". The "process of knowledge itself" does not ... confer "validity".' (Carver, 1980, p.217-18; see also Cohen, 1974).

(for example, before he develops the concept of capital, Marx discusses exchange value, money and surplus value). Marx held that it could not be otherwise:

To develop the concept of capital it is necessary to begin not with labour but with value, and, precisely, with exchange value in an already developed movement of circulation. It is just as impossible to make the transition directly from labour to capital as it is to go from the different human races directly to the banker, or from nature to the steam engine. (GR, p.259)

Therefore, the 'new dialectics' holds that if the starting-point of the inquiry is correctly identified from the analysis of the concrete, it is possible to reconstruct the original concrete through a rigorous scientific procedure, based upon the gradual unfolding of new concepts from the contradictions in other, relatively less developed ones. If this procedure is rigorously adhered to, it should eventually be possible to achieve a rich, complex and dynamic (though not complete) representation of the concrete in thought.

1.3 - CONCLUSION

This chapter has made a systematic presentation of the principles of the 'new dialectics'. This approach to Marx's method conceives the labour theory of value as a systematic theory, whose main objective is the reconstruction in thought of the essential categories of the capitalist mode of production. This reconstruction should be achieved through the application of the rules of dialectical logic. It should start from the identification of the cell-form of the concrete that is to be reconstructed, which is done through concrete abstraction. The contradictions in the cell-form (in this case, the commodity) lead to the determination of relatively simple and abstract concepts

(use value, exchange value, money, etc.). Their gradual unfolding unveils other concepts, more complex and concrete (surplus value, capital, rate of profit, and so on), with which the labour theory of value gradually makes a systematic and intelligible reconstruction of the original concrete.

Because of the method employed, the meaning of the concepts, the level of abstraction of the inquiry, and the connection between different concepts are objectively determined. Therefore, no concept can legitimately be introduced into the analysis except through the development of the contradictions in more abstract ones, and no concept nor assumption can be arbitrarily imported from the outside or imposed by the analyst. The 'new dialectics' holds that the rigorous application of this method should reveal the links between essence and appearance and, thereby, explain the (deceptive) forms of appearance of the phenomena. The ability to reconstruct a complex reality from the development of contradictions in its cell-form, through this procedure, gives scientific character to the inquiry and prevents it from being arbitrary. Eventually, it should lead to the identification of the main characteristics of capitalism, the sources of its dynamics, and the ultimate limits of this system.

This approach is elegant and appealing, and it has much to add to previous analyses of the structure and content of Marx's work. Nevertheless, the application of the principles outlined above is troubled by two fundamental problems; first, the need to prove that the choice of the correct starting-point and the application of the dialectical method are sufficient to reconstruct the concrete and, second, the need to prove that the unfolding of two distinct concepts, used as alternative starting-points, necessarily leads to substantially different outcomes, of which at least one is analytically unacceptable.

Whilst the latter concerns the rationale for the choice of the commodity as the starting-point of *Capital* (if the unfolding of another concept also led to the reconstruction of the capitalist economy in thought, there would be no immanent reason to select the commodity as the starting-point of the book), the former addresses the internal consistency of the approach. This difficulty may be expressed as follows. If the unfolding of a relatively abstract concept does not lead to the introduction of the relatively concrete concepts necessary for the further progress of the analysis, or if the inquiry needs the periodical incorporation of social and historical elements that cannot be derived from within the analysis, some of the central claims of the 'new dialectics' would be seriously weakened.

These issues belong to Hegelian studies, and cannot be addressed here in detail. However, it is doubtful whether the 'new dialectics' can pass the test of consistency unscathed. For, as the state derivation debate of the 1970s has shown (see Clarke, 1991, Holloway, 1994, and Lebowitz, 1994b) it is very difficult, if not impossible, to conceptualize the capitalist state in a strictly logical framework which departs from the contradictions in the commodity (at least if the charges of functionalism and/or reductionism are to be avoided). By the same token, it is difficult to derive the contemporary predominance of inconvertible paper money directly from the value-forms in *Capital 1*, which Marx uses to derive the concept of money, or to understand the (changing) limits of state intervention in the economy purely through the analysis of the logic of capital.

In more general terms, the presumption that the wealth of the concrete is contained in the commodity and can be revealed by the application of the dialectical method alone smacks of idealism, for it implies that capitalism can be reconstructed in thought purely through abstract analysis,

regardless of the historical context (although the 'new dialectics' indicates that historical research may be required at some stage, its role is little more than to fill out the pre-determined structure of the system). This leaves little space for class relations or class struggle to influence the shape and evolution of the system, and raises the question of how capitalism can be transcended (see Bonefeld, 1992, Fracchia and Ryan, 1992, and Holloway, 1992).

This seems distant from Marx's own perspective, that presumes that reality cannot be reduced to concepts. The conceptual presentation that he adopts in *Capital* is surely necessary in view of his method and goals, but it cannot be argued that it is sufficient. For the concrete is specific and historically determinate, and it is in perpetual motion because it is shaped, and subject to intervention, by conflicting social forces. This constantly alters the original concrete, which requires corresponding changes in the analysis. The need for, and nature of, these changes cannot be grasped by thought processes alone, but only by the concrete analysis of the (changing) reality. Unless these limits are recognized, the use of dialectical logic in the reconstruction in thought of the capitalist economy runs into the risk of degenerating into idealist speculation. Therefore, in spite of the substantial contribution which the 'new dialectics' has given to the understanding of Marx's method and the content of his works, this perspective seems insufficient to capture either the wealth of the concrete or the wealth of the analysis in *Capital*.

2 - NORMALIZATION, SYNCHRONIZATION AND HOMOGENIZATION OF LABOURS IN MARX'S THEORY OF VALUE

A vast body of literature has been produced in the last hundred years or so with Marx's theory of value as its object. The continuing interest it has attracted often finds its expression in the form of disputes concerning the meaning and significance of its fundamental concepts. In these controversies, the relations between labour and value, and the issues of the substance, magnitude and form of value, that are comprised within them, have become particularly prominent. In contrast with most studies that emphasize either the logical derivation of the concept of value or its quantitative determination, this chapter concentrates on the *real* processes which underlie the determination of value. This unconventional approach does not amount to a rejection of the previous literature. On the contrary, because it sheds light upon some often neglected aspects of the relations between labour and value, it can be used to assess the cogency of traditionally established views of Marx's theory of value.

This chapter has seven sections. The first discusses the concepts of commodity, labour and value and the nature of abstract labour. It is shown that these categories are conceived in different ways, depending upon whether the analysis adopts the point of view of production or circulation. In addition, this section introduces the notions of normalization, synchronization and homogenization of labour. The normalization of the diverse concrete labours that produce each kind of commodity with different levels of skill, discipline and efficiency is discussed in section two. The synchronization of these labours, performed at distinct moments of time and with the use of diverse technologies, is considered in section three, and the homogenization between labours producing different kinds of commodities is analysed in section four.

Section five uses this framework to make a systematic critique of 'labour embodied' views of value (favoured by writers such as Steedman, 1977, and Sweezy, 1968 [1942]), and section six evaluates the so-called 'abstract labour' version of the labour theory of value, developed by followers of the Soviet economist Rubin (1975 [1928], 1978 [1927]). Despite their differences, it is shown that both approaches give analytical priority to the study of the capitalist economy from the point of view of circulation and not production. Section seven summarizes the results of the investigation.

2.1 - COMMODITIES, LABOUR AND VALUE

The capitalist division of labour is characterized by the formal independence of the production units from each other, their specialization in the production of certain commodities by means of wage labour, and the sale of these commodities at a profit. Marx's theory of value uses the concept of value to explain the nature and necessity of these features, to relate them with each other, and to reveal their inner contradictions. The concept of value has three main aspects: its form, substance and magnitude. This chapter discusses the concept of value and the character of value-producing labour through the analysis of the real processes of determination of value.

The division of labour in capitalism can be approached in two different ways. From the point of view of circulation (exchange), it seems to be an unco-ordinated collection of competing activities, distinguished from one another by the commodities produced in each firm and the possibly distinct technologies adopted. This perspective tends to emphasize the complex processes that bring stability of some sort to the economy and ensure that needs are satisfied (subject to constraints). The investigation may be subsequently extended

into why these processes at times fail, in which case there is disproportionate production and crisis.¹

The analysis of the mode of circulation of commodities calls into question their exchange ratios, the distribution of labour across the economy and the relation between the incomes of the different classes. Therefore, it naturally leads to the investigation of the distribution of the value produced. These issues are worthy of detailed study and bring to light important aspects of capitalism. Unfortunately, they are not conducive to the analysis of the mode of production. This is regrettable, because Marx's theory of value distinguishes capitalism from other modes of production through the relation between workers and owners of means of production and the mode of labour that stems from it (in other words, by the manner in which the workers are, first, separated from the means of production, and then brought into contact with them and with each other to create output). One of the most important claims of this theory is that, if the analysis is restricted to circulation or distribution and ignores the sphere of production, some of the most important features of capitalism remain hidden or blurred.²

However, if the inquiry commences from production, it becomes potentially deeper and richer. From this perspective the division of labour has a different character. Decentralization of decisions and lack of coordination of the activities, that seem essential in the analysis of circulation, become of secondary importance. From the point of view of production, the capitalist division of labour is

¹ Clarke (1994), Howard and King (1989, 1991) and Shaikh (1978) discuss the theories of crisis that have sprung from Marx's theory of value.

² For Marx, production is the most important sphere in capitalism. He discusses the relative importance of production, circulation, distribution and consumption in the Introduction to the *Grundrisse* (see also Fine, 1980, 1982).

a unifying process whose social role is two-fold. On the one hand (as the study of circulation emphasizes), it allows the members of society to satisfy their need for an enormous variety of use values, even though they are specialized and may have only one kind of commodity to offer for sale. On the other hand, the division of labour is predicated upon, and reproduces, the social domination of the workers by the capitalists; thus, it is the vehicle for the continuous appropriation of part of the value produced as surplus value. As the analysis of circulation is blind to one of the aspects of the division of labour, the inquiry should enter the relations of production to reveal the source of profit and the nature of the social relations in capitalism, and distinguish them from relations typical of other modes of production.

The analyses of production and circulation lead to distinct concepts of abstract labour and value. For circulation, the labour performed is private and concrete, because it is carried out independently of other labours and creates a product that may or may not be demanded. Private and concrete labour becomes part of the social division of labour if and when the product is sold, or if the commodities produced are effectively demanded by other members of society. The ownership of money gives the seller an abstract command over part of the social product, because money is the general equivalent and can be exchanged for any commodity (see Arnon, 1984, and de Brunhoff, 1976 [1966]). The value of the commodity is determined by the share of the social product that its seller commands, or the quantity of money that s/he acquires with its sale. Consequently, from this standpoint the abstraction of labour is contingent upon the sale of the product, and simultaneous with the determination of the value produced. If the commodity is not sold, the private and concrete labour applied does not

become abstract nor part of the social labour performed, and does not produce value (see section 6).³

It is different from the perspective of production. From this angle, the concept of abstract labour indicates the social quality of the labour performed. Therefore, it is not primarily associated with the result of the activity, but with the mode of labour. Let us investigate in more detail the relationship between abstract labour and the typically capitalist form of labour, wage labour. The perspectives of production and circulation agree that the labour performed is private and concrete. However, the analysis of production argues that wage labour performed under the command of capital is also abstract and social.

Wage labour is simultaneously concrete and abstract, and private and social, because it is hired to produce use values for sale, in order to valorize the capital advanced. In other words, wage labour becomes the social form of labour when labour power has been transformed into a commodity, in which case the workers are hired on the labour market to produce commodities, making use of other commodities as means of production.⁴ The existence of the labour market is essential, because it proves that the workers are versatile and may be employed in whatever sector of the economy brings the highest rate of profit. In addition, its existence reveals that most products of labour are commodities, and can be purchased with money. Therefore, the prevalence of wage labour is tantamount to the

³ Elson (1979b) makes a lucid analysis of the concepts of private, social, concrete and abstract labour. See also Shaikh (1981) and Weeks (1981).

⁴ '[C]apitalist production is commodity production as the general form of production, but it is only so, and becomes ever more so in its development, because labour itself here appears as a commodity, because the worker sells labour, i.e. the function of his labour power, and moreover, as we have assumed, at a value determined by the costs of its reproduction.' (K2, p.196; see also Sekine, 1975, p.850).

performance of abstract labour in production and the diffusion of monetary relations (or the formation of the national economic space; see Aglietta and Orlean, 1982). Obviously, the existence of the labour market does not imply that any worker can do any job, but that the action of market mechanisms can satisfy the demands of capital for any particular kind of concrete labour. Hence, wage labour is determined by, and expresses, the social relations that define the capitalist mode of production. As Marx puts it,

[T]his abstraction of labour as such is not merely the mental product of a concrete totality of labours. Indifference towards specific labours corresponds to a form of society in which individuals can with ease transfer from one labour to another, and where the specific kind is a matter of chance for them, hence of indifference. Not only the category, labour, but labour in reality has here become the means of creating wealth in general, and has ceased to be organically linked with particular individuals in any specific form. (GR, p.104; see also p. 776, K1, p.134 and Bonefeld, 1992, pp.100-01)

The perspective of circulation is discussed in further detail in sections 5 and 6. From now on, the inquiry adopts the standpoint of production. As seen above, from this perspective wage labour is simultaneously concrete and abstract, and the existence and pervasiveness of monetary exchanges are presumed. In this context, the objectification of the concrete aspect of labour creates the use value of commodities, and its abstract aspect creates their value. Therefore, the commodity-form of the product expresses the double character of wage labour.⁵ It follows that the value-form expresses the historically specific form of production and social domination typical of this system.

⁵ As Postone (1993, p.155) rightly argues, the commodity 'is not a use value that *has* value but, as the materialized objectification of concrete and abstract labor, it is a use value that *is* a value and, therefore, has exchange value.'

Because of this, abstract or value-creating labour cannot be assimilated with the expenditure of physiological energy that the performance of any kind of concrete labour involves. Even though many accept this definition (see sections 5 and 6), it is wrong because it reduces abstract labour to a historically universal category analogous to concrete labour.

The fact that wage labour is immediately concrete and abstract, private and social, does not imply that the production of any commodity immediately gives the capitalist command over a share of the social product. As is rightly emphasized by the circulation approach, this claim can only be expressed through money, the materialization of abstract labour.⁶ The commodities produced must be sold; their exchange for money realizes the abstract labour performed, and money allows the capitalist to claim part of the social product. However, in contrast with the analysis of exchange, this perspective argues that value is created in production, and that the quantity of value created may be distinct from the value of the money exchanged for the commodity (see section 4). In other words,

The total mass of commodities, the total product, must be sold ... If this does not happen, or happens only partly, or only at prices that are less than the price of production, then although the worker is certainly exploited, his exploitation is not realized as such for the capitalist and may even not involve any realization of the surplus-value extracted, or only a partial

⁶ This chapter focuses on the relationship between the performance of wage labour and the creation of value, as opposed to the monetary aspect of this process. This is necessary, given the state of the literature; however, it does not imply that the theoretical importance of money should be denied or neglected (for, if value has an independent form as money then, with respect to money, all labours are abstract and all use values are commodities). The importance of these issues is made evident by Marx's own presentation in *Capital 1*.

realization; indeed, it may even mean a partial or complete loss of his capital. The conditions for immediate exploitation and for the realization of that exploitation are not identical. Not only are they separate in time and space, they are also separate in theory. The former is restricted only by the society's productive forces, the latter by the proportionality between the different branches of production and by the society's power of consumption. (K3, p.352)⁷

The analysis of individual labour processes cannot reveal the value of the output, because the creation of value is a social process determined by the predominance of specific social relations. Commodity values are disclosed only in a social relation involving all commodities and money, which abstracts the concrete and individual aspects of the labours performed, and expresses the value of the commodity in the form of price.⁸

This relation involves three real processes, discussed in sections 2, 3 and 4. They can be summarized as follows. After the commodities are produced, they are put into equivalence with one another through a relation with money as measure of value. This relation reflects upon the labours performed in production, such that (a) all individual labours are *normalized* with other labours producing the same kind of commodity; (b) they are *synchronized* with other

⁷ The relationship between wage labour and abstract labour is discussed in de Angelis (1993), Brighton Labour Process Group (1977), Cleaver (1979), Gleicher (1983), D. Harvey (1982) and Postone (1993); see also K1, pp.134, 136, 149, 159, 186 and Braverman (1979). This perspective does not imply that only wage labour creates value. On the contrary, the objective is to shed light on the distinguishing features of labour in capitalism, bearing in mind the broader characteristics of this mode of production.

⁸ 'Equality in the full sense between different kinds of labour can be arrived at only if we abstract from their real inequality, if we reduce them to the characteristic they have in common, that of being the expenditure of human labour-power, of human labour in the abstract.' (K1, p.166).

labours that have produced the same kind of commodity in the past or with different technologies, and (c) they are *homogenized* with all other kinds of labour as the commodity is equalized with ideal money. The analysis of these processes shows how commodities produced by distinct workers, making use of diverse technologies at different points in time are put into equivalence and can be exchanged for each other on a systematic basis. In addition, it shows that value can only appear as exchange value, because value is not a physical but a social property of commodities.⁹

2.2 - THE NORMALIZATION OF LABOURS

Concrete labours are distinguished from one another primarily by their effect, the production of a specific use value. Thus, the classification of commodities according to their use value, which occurs on the market, corresponds to the classification of the concrete labours performed in the economy. Once they reach the market all pieces of linen, say, produced in the economy are in reality assimilated to one another, and each of them becomes merely a sample of the mass of linen produced. Because of this, the individual linen-producing labours become qualitatively identical elements of a social linen-production process; they are, thereby, *normalized*.

As commodities with the same use value can satisfy the same need, they have the same value, regardless of the individual characteristics of their own production process. In other words, the normalization of labours averages out their productivities; this is why the labour time which determines value is socially, and not individually, determined. Because

⁹ This analysis is inspired, despite their differences, by Elson (1979b), Fine (1980, 1989), Lee (1990, 1993), Himmelweit and Mohun (1981), Mohun (1991), Reuten and Williams (1989), Shaikh (1981), and Weeks (1981), among others.

individual labours are normalized, commodities produced by inefficient, unskilled, or unruly workers are not more valuable than those produced by zealous, skilled and disciplined labourers, in spite of the fact the former take longer to be produced. The recognition of the fact that labours are normalized across those producing the same kind of use value leads to a very important conclusion: differences or changes in the length or intensity of the working-day, or in the skill of the workers employed by different firms, are indistinguishable in their effects.¹⁰

The assimilation between the value-creating capacity of labours producing a kind of commodity does not stop at the last stage of production but includes the inputs used up, because the final product (ten million yards of linen, say) synthesizes everything: flax, machines, energy, transport, labours of many different kinds performed in various times and places, etc. These inputs are blended into the final commodity and, in reality, become one single thing. As the products of many different concrete labours are necessary to create the use value of linen, these labours count as part of the social labour process which produces the linen. Hence, part of the value of linen is created in its own production process, and part is determined by the value of the means of production necessary for its production.¹¹

¹⁰ In other words, the normalization of labours shows that, just as the value-creating capacity of simple labour cannot be deduced from the value of labour power nor the wage rate, there is no fixed relation between the value-creating capacity of skilled labour and the value of skilled labour power, the cost of acquiring the skill or wage differentials. This issue cannot be developed here in further detail. For an overview of the polemics that surround it since Bohm-Bawerk (1949 [1896]) first criticized Marx's argument for its circularity or worse, see Attewell (1984), Bowles and Gintis (1977, 1981), Devine (1989), Fine (1990b), Giussani (1986, 1994), Gleicher (1983, 1989), D. Harvey (1982), P. Harvey (1983, 1985), Hilferding (1949 [1904]), Itoh (1987), Morishima (1978), Roncaglia (1974), Rosdolsky (1977 [1968]) and Rowthorn (1980b).

¹¹ 'The labour-time required for the production of the cotton, the raw material of the yarn, is part of the labour

2.3 - THE SYNCHRONIZATION OF LABOURS

The classification of commodities according to use value reveals that the labours that have produced them are parts of a single social labour process. In the use value of the commodity, the technologies of production adopted and the date of application are immaterial. The simultaneous sale of commodities produced in possibly different moments shows that individual concrete labours are *synchronized* with those that have produced the same kind of commodity at another point in time. The synchronization of diachronous concrete labours ensures the continuity of production and exchanges, such that the necessary and inevitable non-simultaneity of human actions does not paralyse the economy.

It is because labours are normalized and synchronized that all commodities of a kind have the same value, irrespective of how, when and by whom they were produced. Because of normalization (N), the labour time necessary to produce a kind of commodity is socially determined, and comprises that necessary to produce the inputs. Because of synchronization (S), this labour time is that presently necessary for production, and not that necessary when production may have occurred (in other words, value is a social relation that

necessary to produce the yarn, and is therefore contained in the yarn. The same applies to the labour embodied in the spindle, without whose wear and tear the cotton could not be spun ... Hence in determining the value of the yarn, or the labour-time required for its production, all the special processes carried on at various times and in different places which were necessary, first to produce the cotton and the wasted portion of the spindle, and then with the cotton and the spindle to spin the yarn, may together be looked on as different and successive phases of the same labour process. All the labour contained in the yarn is past labour; and it is a matter of no importance that the labour expended to produce its constituent elements lies further back in the past than the labour expended on the final process, the spinning.' (K1, p.294)

measures the ability of society to produce the goods and services necessary for its self-reproduction, and not a substance physically blended into the body of the product of labour, and which is carried over inside it through time).¹²

Two implications follow from this; first, the real (but not conceptual) indeterminacy intrinsic to the magnitude of value reflects the situation in which values are not ascertained once and for all when commodities are produced, but are socially attributed at every moment. This does not contradict the previous conclusion that wage labour produces value as it transforms inputs into outputs. On the contrary, it shows that capitalist production is not an individual process of value embodiment but a social process of value creation, and that the products of labour have a value-form because specific social relations of production prevail. In capitalism, commodities exist as samples of their kind, and each kind of commodity is but one amongst many others. Their

¹² Marx was absolutely clear about this (despite protestations to the contrary in, for example, Cohen, 1981, Freeman, 1994, and Mirowski, 1989): 'The definition of constant capital ... by no means excludes the possibility of a change of value in its elements. Suppose that the price of cotton is one day sixpence a pound, and the next day, as a result of a failure of the cotton crop, a shilling a pound. Each pound of the cotton bought at sixpence, and worked up after the rise in value, transfers to the product a value of one shilling; and the cotton already spun before the rise, and perhaps circulating in the market as yarn, similarly transfers to the product twice its original value ... The value of a commodity is certainly determined by the quantity of labour contained in it, but this quantity is itself socially determined. If the amount of labour-time socially necessary for the production of any commodity alters ... this reacts back on all the old commodities of the same type, because they are only individuals of the same species, and their value at any given time is measured by the labour socially necessary to produce them, i.e. by the labour necessary under the social conditions existing at the time' (K1, pp.317-18). The same argument is found in K1, pp.130, 238, 676-77, K3, p.522, TSV1, pp.109, 232-33, TSV2, p.474, TSV3, pp.154, 280, and GR, p.135. This form of assessing the magnitude of value is particularly useful because of its immediate reference to the possibility of technical change; it will be seen below that other readings of Marx's theory of value may have a different view of this issue.

value is determined by the general, historical process of production of each commodity, alongside all other production processes; and the quantity of value produced depends on the ability of society to reproduce each commodity.

Second, it was shown above that the labour process that creates a commodity comprises not only the final transformation of the inputs but also their own production, no matter how long ago this occurred or how complex it was. The real (and not only conceptual) integration of the production of inputs into the production of the output shows that Marx's assertion that the value of the output is the sum of the input values with the new value created should not be understood in the sense that 'old' values are somehow carried over in production, while new values are 'added' to them (which may be conducive to infinite regression; see Carchedi, 1984, 1991, 1994). Value is a synchronic measure that expresses the *present* value of the means of production and the quantity of living labour *currently* necessary to transform them into the final commodity. Therefore, past labour creates value only in so far as it corresponds to present social labour, and commodities produced in the past have only as much, or how little, value as those currently produced.

In other words, commodity values have two parts; one which corresponds to the quantity of abstract labour socially necessary to transform the inputs into the output at the present time, and another that represents the abstract labour currently necessary to produce their inputs (the material composition of the inputs is determined by the present techniques of production of the output). Therefore, the two parts of the value of a commodity have distinct sources, that correspond to *different kinds* of abstract labour; one that was applied in the production of the output of this period (say, linen), and another that was applied (also in this period) in the production of the inputs presently necessary to reproduce the linen - even though the

inputs actually used up were produced in the (possibly distant) past. The former will be called *living labour*, and the latter *virtual labour*.¹³

An example will help clarify these concepts. Suppose that, in a very simple economy, only two kinds of commodity are produced, flax (F) and linen (L). Flax is produced by labour alone and used as an input to linen, and linen is the consumption good. The technologies of production are such that four hours of simple labour (l) produce one unit of flax, and two hours of labour and one unit of flax produce one unit of linen. Thus:

4l → 1F

2l + 1F → 1L

The (normalized and synchronized) labour time 'technically' necessary to reproduce (LTTNR, λ) the flax is clearly four hours, but what is the LTTNR of linen?¹⁴ According to the argument above, it is two hours of living labour plus the LTTNR of one unit of flax, four hours. Therefore, the LTTNR of one unit of linen is six hours:

$$\lambda_F = 4l$$

$$\lambda_L = 2 + [4] = 6l$$

The term in square brackets is the LTTNR of flax, that is determined in another production process.

¹³ The traditional term 'dead labour' is rejected because it may induce the idea that the value of the inputs is a substance carried over through time. The term 'virtual labour' is more adequate because it conveys the view that the value of the inputs is determined by labour processes other than those which produced the inputs actually used up.

¹⁴ The reference to 'technically' required labour is heuristic and should not obscure the fact that the techniques of production are socially determined; this point is forcefully developed in Brighton Labour Process Group (1977), Levidow and Young (1981, 1985), Postone (1993) and Slater (1980).

Let us see what is the impact of a technical change in the production of flax. If, in the following period, the technologies of production change to:

$$2l \rightarrow 1F$$

$$2l + 1F \rightarrow 1L$$

the LTTNR of flax falls to two hours. The living labour necessary to produce the linen is unaltered at two hours, but the virtual labour has fallen to two hours (*despite the fact* that it took four hours of labour to produce the unit of flax consumed in the production of this unit of linen). Therefore, the LTTNR of linen falls to four hours:

$$\lambda_F = 2$$

$$\lambda_L = 2 + [2] = 4$$

This example illustrates the distinct roles of living and virtual labour in the determination of the LTTNR. Even though both are normalized and synchronized (NS), they differ because living labour is NS in the sector producing the final commodity, while virtual labour is NS in the sector(s) producing the input(s).

2.4 - THE HOMOGENIZATION OF LABOURS

The third and last stage of the abstraction of labour is the *homogenization* of labours of different qualities. It occurs when the commodities produced are equalized with ideal money and receive a price (see Saad Filho, 1993a). The price-form is the necessary form of appearance of the value-form. The word 'necessary' was used in the previous sentence because values cannot directly appear as quantities of hours of labour; they can appear only as price, the exchange value of commodities in terms of money. This indicates that the logic of value is one of essence, and not of appearance; it must

appear, but it can only appear as something else (see chapter 1 and TSV1, p.95).

The reason why value cannot appear as a quantity of hours of labour is that the value of a commodity is determined by the abstract labour time that it takes society to reproduce this commodity, and not the concrete labour time that it takes any individual worker or firm to produce one sample of the object (see Elson, 1979b, pp.137-38). Concrete time, indicated by the clock and the stopwatch, estimates the duration of specific concrete labours, performed by workers who operate a particular set of instruments with given skill and intensity and, in doing this, transform the means of production into a pre-conceived output.¹⁵

It was shown in sections 2 and 3 that certain individual characteristics of the labours producing each kind of commodity are abstracted when these labours are normalized and synchronized. The NS of labours determines the labour time 'technically' necessary to reproduce each commodity at a particular point in time. However, NS labours are concrete and, therefore, do not determine the magnitude of value. NS labour is concrete, and not abstract, because it is determined by the technology adopted in each sector, and the skill and intensity of the labour performed there, regardless of their relation with the other sectors. Let us return to the flax and linen economy depicted in section 3 to clarify this very important issue.

In the first part of the example, it was assumed that it takes society four hours to produce a unit of flax and six hours to produce a unit of linen. Whilst it is conceptually

¹⁵ Needless to say, the performance of concrete labour is subject to the careful control of the capitalist. The reaction of the workers against capitalist control of the production process is discussed in the analysis of class struggle in production. This issue cannot be considered here, but see Carchedi (1991), Cleaver (1979), and Lebowitz (1992).



simple to derive the LTTNR of four hours from the individual flax-producing processes (even though there may be different opinions on how this should be done; see, for example, Indart, n.d., Carchedi, 1991, and Carling, 1986), the same is not true of linen. The problem is caused by the need to sum (living) linen-producing labour with (virtual) flax-producing labour, an operation that does not make sense in concrete time because of the different dimensions of the parcels (see Weeks, 1990, pp.4-5).

In the example this difficulty was avoided because of the assumption that the labours involved were simple, in which case the same undifferentiated type of labour power is applied in all sectors of the economy. Even though this presumption makes the sum of different types of labour acceptable by way of example, the performance of simple labour throughout the economy should be the result of the analysis, and not its point of departure. Conceptual difficulties such as this show that the labour time socially necessary to reproduce a commodity (LTSNR), which is the labour time that determines value, is not determined in concrete time. Magnitudes such as LTSNR and value belong to the realm of abstract time; therefore, they cannot be measured with the stopwatch.¹⁶

The distinction between concrete and abstract labour, and between LTTNR and value, is important because the value produced by one hour of NS labour depends upon the sector in which the labour is applied. For example, because of the different levels of skill of the labour power employed, one hour of NS labour applied in computer programming creates more value than one hour of NS labour in strawberry-picking. For the same reason, a person may produce distinct quantities of value in one hour according to the sector in which s/he works.

¹⁶ Postone (1993) discusses the relation between concrete and abstract time in Marx's theory of value.

The distinct value-productivities of labours applied in different sectors of the economy are ironed out by the homogenization (H) of labour. This process transforms these qualitative differences into distinct quantities of simple (equally value-productive) labour in each sector. The abstract labour necessary to produce them can be measured now, regardless of the difference between their living and virtual parts. It was seen above that this labour cannot appear as a length of time but only as price, the ratio between the value of commodities and the value of the money-commodity. The expression of value as price establishes an equivalence between each commodity and an ideal quantity of money, and expresses their claim to be converted into real money. The equivalence between the commodity and money shows that the labour that has produced the commodity is equivalent to all other labours performed in the economy, even though they are performed in completely different forms.

The value of each kind of commodity is determined by the complex unity of the normalization, synchronization and homogenization (NSH) of the labours producing all kinds of commodities, and is established through the relation between commodities and money. If each commodity is seen as a particular instance of the universal relation between commodities and money, the mass of use values produced becomes the result of the application of the total (normalized) labour power allocated to each sector, and its expenditure at the current (synchronized) level of productivity of the branch of industry. The distinct value-productivity of the labours applied is brought to a single, social level (homogenized) when the commodities are related to money and their prices are determined.

The formation of prices marks the end of the phase of production and the beginning of circulation. It synthesizes the NSH of the labours performed in the economy, which

isolates the abstract labour applied from the concrete labour expended, determines the LTSNR and value of each commodity, and expresses their values as prices. From a broader perspective, the NSH of labours not only indicates the equivalence of each commodity with a specific amount of money, but also the need to realize this equivalence (or sell the commodities produced). Despite their analytical differences, the processes of NSH are carried out simultaneously, and each of them depends upon the others. The normalization of all labours producing a particular kind of commodity requires their synchronization, as commodities are not simultaneously produced, but reach the market and leave it in a continuous flow. However, labours cannot be synchronized unless they are normalized, because only labours with the same quality can be put into technical and time-equivalence. Finally, homogenization must obviously be preceded by the other two, but they can only take place when commodities are ideally equalized to money, which characterizes homogenization itself.

These demands are not self-contradictory, because production is a continuous social process that culminates in individual exchanges of commodities for money. As commodities produced under capitalism are meant for sale, and since their inputs are generally also commodities (inclusive of labour power), they have a value-form from the start. Because of this, living (concrete) labours are normalized, synchronized and homogenized as they are performed and even as they are conceived. The form of appearance of this process is the universal reference to value and money that pervades all spheres of production, and life as a whole, under capitalism.

It was shown above that the price of the commodity is the form of appearance of the abstract (NSH) labour necessary to produce it. In spite of this, there may be a difference between the share of the social labour necessary to produce the commodity and the share of the social product which its

seller commands (see section 1). In other words, even though (money-) price is the form of expression of (labour-) value, the sale price of the commodity may be distinct from the monetary expression of its value.¹⁷ The possibility of differences between price and value is intrinsic to the price form:

The magnitude of the value of a commodity ... expresses a necessary relation to social labour-time which is inherent in the process by which value is created. With the transformation of the magnitude of value into the price this necessary relation appears as the exchange-ratio between a single commodity and the money commodity which exists outside it. This relation, however, may express both the magnitude of value of the commodity and the greater or lesser quantity of money for which it can be sold under given circumstances. The possibility, therefore, of a quantitative incongruity between price and magnitude of value ... is inherent in the price-form itself. This is not a defect, but, on the contrary, it makes this form the adequate one for a mode of production whose laws can only assert themselves as blindly operating averages between constant irregularities. (K1, p.196)

The prices of commodities may differ from their values for all manner of reasons, such as fluctuations in supply or demand, monopoly power or the inability to sell because of a crisis. However, none of them modifies the basic fact that values are determined in the sphere of production, and that

¹⁷ This can be expressed more simply by saying that the price of the commodity may be distinct from its value. However, the reader should beware that the word 'value' does not stand for LTSNR, because it is impossible to make a quantitative comparison between a sum of money and a length of time. 'Value' is used here as a shorthand for 'monetary expression of value'. Marx uses this simplified form extensively in his work. This form is also adopted in chapter 5.

phenomena of circulation or distribution can influence only their expression as prices. Let us investigate one such case in detail, because it illuminates from another angle the relationship between value and price.

Suppose that the workers are identical to each other, and that the firms producing linen are also identical. In this case (as seen above), the LTSNR of linen is equal in magnitude to its LTTNR. Despite this, the monetary expression of the value of linen may be different from its market price. This will happen, for example, if too large (or too small) a share of the social labour is applied in the production of linen, when compared with the social need for this commodity:

Let us suppose ... that every piece of linen on the market contains nothing but socially necessary labour-time. In spite of this, all these pieces taken as a whole may contain superfluously expended labour-time. If the market cannot stomach the whole quantity at the normal price of 2 shillings a yard, this proves that too great a portion of the total social labour-time has been expended in the form of weaving. The effect is the same as if each individual weaver had expended more labour-time on his particular product than was socially necessary. As the German proverb has it: caught together, hung together. All the linen on the market counts as one single article of commerce, and each piece of linen is only an aliquot part of it. (K1, p.202)¹⁸

¹⁸ In other words, 'The total quantity of labour-time used in a particular branch of production may be under or over the correct proportion to the total available social labour, although each aliquot part of the product contains only the labour-time necessary for its production, or although each aliquot part of the labour-time used was necessary to make the corresponding aliquot part of the total product ... From this standpoint, the necessary labour-time acquires another meaning. The question is, in what quantities the necessary labour-time itself is distributed among the various spheres of production ... If too large a quantity of social

If the distribution of labour in the economy does not correspond to the social need for each commodity, the value realized in sales may be different from the value produced. In other words, differences between supply and demand do not affect the value-creating capacity of labour, but only the expression of this value as price. In the quotation above, Marx shows that, for the individual producers, the effect of excess supply (demand) is the same as if they had employed workers whose skills or efficiency were below (above) average. The difference, however, is that relatively inefficient workers produce less value than their more efficient colleagues in the same time, and the money-expression of the value of the commodities merely reflects this. If, on the contrary, the whole branch produces in excess of demand (the case above), the lower quantity of money realized per hour of labour is due to the deviation between the sale price of the commodity and its value. To sum up, the ironing out of differences between the value-creating capacity of labours employed in the same branch takes place at the end of production, when labours are normalized. In contrast, the expression of the value created as price is a phenomenon of circulation that is subject to conflicting determinations from production and distribution.¹⁹

The difference between the labour time individually necessary in production and the LTSNR (that is usually called the relation between individual and market values) relates the efficiency of each producer with the norm. The individual value is the concrete labour time applied in production, plus the virtual labour necessary to reproduce

labour-time is used in one branch, the equivalent can be paid only, as if the correct quantity had been used.' (TSV1, pp.231-32; see also K3, pp.288-89.)

¹⁹ See Shaikh (1981, 1984) for a different interpretation of the relation between the production of value and its expression as price.

the inputs used up (strictly speaking, this sum is impossible because of the different dimensions of the parcels, but it is often used by way of approximation). Therefore, the individual values can become known only after the labours are NSH and the market values are determined. Because of this, it is wrong to see commodity values as the weighted average or mode of the individual values.

The reason why this is wrong is that commodities are not produced by fully independent labours that happen to confront one another on the market. On the contrary, they are created on the basis of a previously given social division of labour, which imposes an intrinsic equivalence between individual labours and makes them part of the social division of labour (see section 1). In spite of this, the comparison between individual and social values is useful, because it shows that the individual value of commodities produced by more advanced technologies is lower than the norm. Their sale allows the more adventurous capitalists to capture extra surplus value in circulation, which provides a powerful stimulus for cost-reduction, technical change and the rationalization of methods of production (see Fine and Harris, 1979).

2.5 - THE 'EMBODIED LABOUR' APPROACH TO MARX'S VALUE THEORY

Some of the most influential readings of Marx's theory hold that value is the labour embodied in commodities during production.²⁰ Two such views are considered in this section,

²⁰ Hodgson (1981, p.88), for example, argues that for Ricardo and Marx '[t]he embodied labour value of a commodity is defined such that the total embodied labour value of the gross output of a process equals the embodied labour value of all the inputs plus the amount of socially necessary living labour employed.' The reader should note that this section and the following are not surveys the various interpretations of Marx's value theory. On the contrary, the

the traditional (Dobb, 1940, 1967, Meek, 1956a, and Sweezy, 1968 [1942]; see also Mage, 1963) and the Sraffian (Hodgson, 1973, 1981, Pasinetti, 1977, and Steedman, 1977, 1981b). According to the traditional interpretation, Marx's theory of value is not essentially different from Ricardo's. It may be summarized as follows (see de Vroey, 1982, 1985, and Postone, 1993):

(1) The main object of the theory of value is the analysis of exploitation. The categories developed in the first three chapters of *Capital* (commodity, value and money) are only indirectly related with this issue, because they belong to a wider category of modes of production;

(2) The analysis of profits requires the determination of the prices of commodities, inclusive of labour power, which is done through a set of assumptions that include general equilibrium (simple reproduction). Because of this, prices are only relative to a numeraire;

(3) The theory focuses on the magnitude of value, defined as the quantity of labour necessary to produce (embodied in) each commodity. Abstract labour is defined in opposition to concrete labour; it is labour in general, abstracted from the form of the activity. Scant regard is paid to the substance and form of value, that have no real impact on the analysis. The link between value and money is all but ignored. A theory of money is unnecessary, and money is effectively considered a means of facilitating exchange (a veil);

(4) The determination of relative prices has two stages; first, it is assumed that all capitals have equal organic compositions (OCCs), in which case exchange ratios are

objective is to present some of the most important views briefly and cogently, following the best writers, and evaluate their merits on the basis of the analysis in the previous sections.

determined by embodied labour alone. Second, the OCCs are allowed to vary; in this case relative prices differ from ratios of embodied labour, but it is presumed that the latter determine (in a mathematical sense) the former;²¹

(5) The conceptual apparatus is elementary. Any use value put out for sale is a commodity; value is often confused with exchange value, and the articulation between values and prices is left unclear (even though they are presumed to be quantitatively comparable).

Traditional Marxism is wrong in presuming that Marx's critique of capitalism begins with the introduction of the concept of surplus value, for in section 1 above it was shown that the concepts of commodity and value already make reference to the specifically capitalist form of subordination of the workers. In addition, the concern with exploitation is indicative of the emphasis which traditional Marxists place on the relations of distribution. This bears a clear resemblance with Ricardo's interest in the laws of distribution, as opposed to the relations of production, which Marx criticized heavily (see Fine, 1982).

The emphasis upon distribution has led some Marxists to approach capitalism from the point of view of exchange. Because of this, the system is conceptualized on the basis of the structures of circulation and distribution, for example the market and private property; in contrast, the role of wage labour and the subordination of the workers in production become of secondary importance (see section 1 and Postone, 1993, p.54). However, the perspective of exchange is insufficient, because it takes the forms of labour and

²¹ The concept of OCC is discussed in chapter 4, and its influence on the determination of prices of production in chapter 5. It will be seen that what this approach calls 'OCC' is in fact what Marx terms value composition of capital (VCC).

wealth for granted. In other words, it cannot explain their social and historical determinations.

Lack of satisfaction with traditional Marxism led to the development of two alternative approaches, the 'abstract labour' version of Marx's theory of value (see section 6) and the Sraffian.²² The Sraffian approach attempts to formalize the traditional model with a view to articulating the value and the price systems, drawing from Bohm-Bawerk (1949 [1896]), Bortkiewicz (1949 [1907], 1952 [1906-07]), and Tugan-Baranowsky (1905). This approach may be summarized as follows (see also chapters 5 and 6):

(1) There is almost complete disregard for the substance and form of value, and its magnitude is the sole object of investigation. The analysis assumes a state of general equilibrium (simple reproduction). The $(1 \times n)$ vector of commodity values is given by $\lambda = \lambda A + l = l(I - A)^{-1}$, where A is the $(n \times n)$ technical matrix and l is the $(1 \times n)$ vector of direct labour;

(2) Money has no autonomous role and (when considered at all) it is merely a numeraire;

(3) The definition of value is the basis of an overall critique of alleged inconsistencies in Marx, that leads to the conclusion that the project of determining value from embodied labour is flawed and must be abandoned.

There is no space here for an account of the long-running disputes between Sraffians and Marxians.²³ In what follows,

²² The term Sraffian does not refer to Sraffa himself but to the critique of Marx elaborated by some of his followers. It is preferred to the term 'neo-Ricardian' because Ricardo was committed to a labour theory of value, while the Sraffians reject the concept of value altogether (see Fine and Harris, 1979, and Fine, 1980).

²³ See, however, chapters 5 and 6 and de Brunhoff (1973b, 1974-75), Desai (1989), Dostaler and Lagueux (1985), Eatwell

the labour-embodied conceptions of value are probed from the point of view of their approach to abstract labour and the processes of determination of value.

The focus upon distribution and the standpoint of exchange lead both versions of the embodied labour approach to define abstract labour as concrete labour devoid of form (see section 1). However, if abstract labour is defined through a mental generalization such as this it becomes identical with physiological labour, the general physical exertion required by any purposeful transformation of nature. This is wrong because, as was shown in section 4, physiological labour is concrete, and not abstract, and is measured in time, and not through money. The definition of abstract labour as physiological labour leads to an ahistorical concept of value, because the transformation of nature always requires the expenditure of physical energy, regardless of the mode of production. Moreover, this concept of value is ideal, instead of the real outcome of the NSH of labours. The adoption of this concept of value in the embodied labour approaches arbitrarily separates content from form and poses, at a later stage of the analysis, the problem of how (ideal) values should be related to (real) prices. This issue surfaces most clearly in the discussion of the transformation problem, and it has led to a major controversy in the Marxian value theory (see below and chapters 5 and 6; see also Arthur, 1993a, and Mohun, 1991).

The assimilation between abstract labour and physiological labour implies that the value of a good is determined by the physiological labour time necessary to produce it. However, it was shown in section 3 that this is not value but, at best, the LTTNR of the good. Let us examine the implications of this incorrect definition of value from the point of view

(1974-75), Fine (1986a), Fine and Harris (1976, 1977, 1979), Hodgson (1973), Schwartz (1977a, 1977b) and Steedman (1981a).

of the NSH of labours. The first consequence is that the process of normalization is conflated with the classification of concrete labours according to the use values produced. This is a considerable simplification, because it was shown in section 2 that this classification is not the normalization of labour, but only its point of departure. Because of normalization, for example, the skill (and other) differences between workers producing a given kind of commodity are averaged out. This is not the case here, where these differences have to be dealt with by force of assumptions (see below).

The effect of synchronization is simulated by another thought process, the calculation of values as quantities of dated labour. The projection of present conditions of production into the indefinite (conceptual) past allows the calculation of the total mass of labour necessary to produce the output given the present techniques, which is called its value. This does not imply that those who adopt this technique (mainly the Sraffians) admit that value is determined by the labour time necessary to reproduce a commodity, instead of the labour time originally spent. As the analysis is predicated upon equilibrium (thus, upon the absence of technical change), there is no room for concern over this issue. Because of this, the concepts of living and virtual labour surface as 'direct' and 'indirect' labour, that correspond more closely to an equilibrium analysis.

Finally, the homogenization of the labours performed is reduced to the quantitative relation between the LTTNR of the commodity (its 'value', measured in hours of labour) and the LTTNR of the commodity arbitrarily chosen as the numeraire. The problem posed by the distinct value-creating capacity of labours performed in distinct sectors of the economy is eliminated by the assumption that all workers are identical (see section 4).

The incorrect conceptualization of abstract labour and value in Sraffian analyses has led to the representation of values by the equation $\lambda = \lambda A + l$. However, in spite of its widespread acceptance this equation does not represent Marx's concept of value. Let us see why. The problem does not lie in the form of the equation, that rightly states that the value of the commodity is the sum of the value of its inputs with the living labour necessary to produce it. The difficulty lies in the parcels. The matrix A represents the inputs necessary to produce a unit of the output. For the purposes of this analysis, it can be admitted that A is drawn from the input-output tables of the economy. It may also be admitted that the labour l can be derived from these tables; it represents the number of labour-hours required to transform the inputs into the output. However, this is not homogeneous labour, but only NS labour. In other words, l is measured in hours of (heterogeneous) use value-producing labour (weaving, shipbuilding, printing, etc.). These labours are as distinct as the goods they produce, and cannot be added as the Sraffian equation wrongly presumes.²⁴

If, however, it is assumed that the workers employed in the economy are identical, the labour-times required by distinct activities can be added (as was done, by way of example, in section 3). This is what the Sraffians usually do, and the result (measured in hours of labour and not money), is called 'value'.²⁵ It was shown above that this is not what

²⁴ In other words, one hour of weaving cannot be added to one hour of printing, for the same reason why ten yards of linen cannot be added to five books. The same holds for proof-reading and printing, even if both activities aim at the production of books for sale. The common objective of the work does not alter the fact that the activities involved are qualitatively distinct (see Weeks, 1982, 1983; see also Bellofiore, 1989, Benetti, 1974, and Naples, 1989).

²⁵ Steedman (1977, p.19) departs from the assumption that all labour is simple and of equal intensity and skill, 'so that each individual expenditure of labour-time is an expenditure of socially necessary labour-time.' According to him, this implies that '[t]he impossible task of adding together quantities of different concrete labour-times will not be

Marx calls value, but merely the LTTNR of the commodities. The difficulty with this calculation of value appears when the simplifying assumptions are relaxed. For example, if the workers have different skills, one hour of concrete labour may create more or less value, depending on who performs it, and where. Consequently, the analyst needs reduction coefficients that indicate the relation between concrete labour performed and value created.

As the labour embodied approaches misconceive the NSH of labours and presume that the labour time necessary to produce the commodities can be expressed without the mediation of money, these reduction coefficients cannot be derived from the (money-) value actually created per hour of concrete labour. On the contrary, they are necessary to allow this value to be calculated. Therefore, the coefficients have to be derived from elsewhere, for example, the cost of the skill or wage differentials. Unfortunately, as seen above, there is no necessary relation between them and the value-productivity of labour, and the postulation of a correspondence is entirely arbitrary. To sum up, the existence of a basic flaw in the study (the incorrect conception of abstract labour) implies that the removal of one kind of arbitrary assumption (for example, the identity of skills) does not improve the quality of the inquiry, because it forces the analyst to resort to arbitrariness of another kind (such as the postulation of a fixed relationship between the cost of the skill and the value-creating capacity of the workers; see section 2 and Perelman, 1993).

attempted ... All summations of labour-times are summations of quantities of abstract labour.' However, the conflation of abstract labour with physiological labour is obvious, in spite of Steedman's protestations to the contrary.

2.6 - THE 'ABSTRACT LABOUR' VERSION OF MARX'S THEORY OF VALUE

The widespread dissatisfaction with the traditional approach led, in the late 1960s, to renewed interest in dissenting views such as those of the Soviet economist Rubin (1975 [1928], 1978 [1927]). In addition to an alternative interpretation of Marx's theory of value, Rubin's works also offered the grounds for a critique of the Sraffian approach that was grafted upon traditional Marxism. The so-called 'abstract labour' approach to Marx's value theory stems from an Althusserian reading of Rubin's works (Backhaus, 1974 [1969], de Brunhoff, 1973a, 1976 [1966]; see Saad Filho, 1990, and de Vroey, 1982, 1985, for surveys of the literature on this approach).

In contrast with the emphasis on the magnitude of value and relative neglect of money, typical of embodied labour approaches, this view is essentially qualitative, and concentrates upon the form of value and the relations between abstract labour and money (see Messori, 1984). It departs from the fact that commodity production is a form of social division of labour where the producers are 'separated' (Benetti and Cartelier, 1980), in the sense that they are formally independent and decide what to produce unaware of, and unconstrained by, the choices of the others (the standard reference is Marx's letter to Kugelmann of 11th July 1868; see Marx, 1988 [1928]). The counterpart to this freedom is the need to produce a socially useful commodity, which in practice means one that is sold (de Brunhoff, 1978, calls the imperative to sell commodities the 'monetary constraint'; see also Aglietta, 1979 [1976]).

Because of 'separation' and the monetary constraint, the abstract labour approach concludes that commodities are produced by private labours which, at best, are potentially abstract and social (see section 1). These labours are converted into social and abstract labour if and when the

commodities are exchanged for money, because money is the product of immediately social labour (gold-mining, say). As the labour producing the money-commodity is directly social, the analytical stature of the value of money is distinctive. In the last instance, it is not determined by the labour-time necessary to produce a unit of the money-commodity, but from the political authority which establishes the currency. In this sense, money is not a commodity but a social relation sanctioned by the state, even if it has the form of gold or silver (see Reuten and Williams, 1989, and de Vroey, 1985).

The sale of the commodity gives the producer a fraction of the social income, that is a claim for a share of the product.²⁶ At the social level, the ratio between the total income and the total value-creating labour performed is the monetary expression of the working-hour (MEWH). The MEWH indicates how many hours of abstract labour were necessary to add £1 to the value of the commodities produced (see chapter 6, Aglietta, 1979 [1976], Foley, 1982, and Lipietz, 1990).

The form of the relations between commodities and money has two very important implications; first, abstract labour is defined as social labour indirectly formed through sale; second, the magnitude of value of a commodity is determined by the value of the money for which it is exchanged. Non-sales indicate that the decision to produce was wrong and that the labour performed is useless and does not create value.²⁷ In other words, this approach holds that the concept

²⁶ 'The exchange transaction realizes the uniformity of products as commodities by establishing an equivalence in which private labour appears simply as a fraction of the overall labour of society. This uniform character of labour, as a fraction of overall social labour, is what is known as abstract labour' (Aglietta, 1979 [1976], p.38, emphasis omitted).

²⁷ 'Labour is first performed as *private labour*, initiated by an independent decision. It is transformed into social

of value does not refer to the expenditure of labour in production, but to the validation in exchange of the labour performed. Consequently, there is no intrinsic relation between the performance of wage labour and the value of the product; in addition, the only social aspect of capitalism that is discussed in detail is the exchange of commodities through the market. This leads to the conclusion that the value-form derives from the production of goods for exchange, which is considered the most abstract determination of capitalism (see de Brunhoff, 1973a).

This version of Marx's theory of value rejects the traditional definition of abstract labour as the (physiological) labour necessary in production, because of its ahistorical character. The alternative is a concept of abstract labour conceived as social labour formed in an indirect way, through the exchange of the products of private labour for money. This modification is considered sufficient, because it restricts the concept of value to commodity-producing societies. However, this argument is clearly based on a logical inversion (see section 1 and de Angelis, 1993, Banaji, 1979, and Gleicher, 1983): instead of pointing out that in capitalism labour is simultaneously abstract and concrete and, therefore, the product has a use value and a value-form, it is argued that labour only becomes abstract when the product is exchanged for money. This inversion is caused by the conflation between the money-form of value and the substance of value that is characteristic of this school. This approach to abstract

labour through, and only through, the sale of its product. When social labour is formed in this context, it is called *abstract labour* ... Thus the notion of value, rather than being linked to a mere embodiment of labour, refers to the validation of private labour ... [I]n the absence of circulation - that is, of sale - there is no creation of value at all.' (de Vroey, 1981, pp.176-77); 'Value is abstract labour formed from concrete labour by market exchange.' (Mattick, Jr., 1991-92, p.34). An extreme version of this approach is adopted by Eldred and Hanlon (1981) and Eldred (1984).

labour and value will now be probed from the point of view of its implications for the normalization, synchronization and homogenization of labours.

The most significant aspect of this definition of abstract labour is that it can hardly be connected to the labour performed in production, despite protestations to the contrary.²⁸ As abstract labour is considered ideal prior to exchange, this approach dislocates the NSH of labours into circulation. In effect, this dislocation amounts to the subsumption of production by circulation, because the determination of value no longer reflects the intrinsic relation between labours that produce all commodities. It was seen above that this relation is established through wage labour and capitalist social relations, and it is expressed by the money-form of the product. On the contrary, for this approach labours are abstracted in and through the actual relation between individual commodities and money.

If this is the case, the normalization of labours becomes purely a market phenomenon. Labours producing the same kind of commodity are related to each other and create the same value not because they are part of a single social production process, but because competition imposes a single price for goods with the same use value. The abstract labour approach implicitly recognizes that labours are synchronized, since it accepts that the magnitude of value is instantaneously measured. However, this effect is attributed to sales and not to the relation between

²⁸ For example, de Vroey (1981, p.177) argues that '[e]xchange creates value but production determines the magnitude of value', because the price at which commodities are sold is allegedly determined by the average conditions of production. However, if labour becomes abstract only through the sale of its product, and if its measure is the quantity of money for which the commodity is exchanged, it is safe to conclude that, in the last instance, abstract labour is both qualitatively created and quantitatively determined in circulation (see Lee, 1990, pp.142-45, and Shaikh, 1981).

commodities and ideal money, established in price-formation. Finally, labours producing distinct commodities are 'homogenized' because their products are converted into (homogeneous) money, and not because the abstraction of their heterogeneous characteristics reveals their common value-producing essence.

The dislocation of NSH into actual exchanges, that is typical of the 'abstract labour' approach, reflects the disregard for the relation between wage labour and the production of value; in addition, it virtually eliminates the theoretical relevance of the process of determination of price. This drawback is revealing because, as seen in sections 1 and 4, price is the form of expression of the abstract labour necessary to reproduce the commodity. The diminished relevance of the determination of price shows that the analysis neglects the creation of value in production and, instead, focuses on its realization in exchange. One of the effects of the ensuing subsumption of production by circulation is the dilution of the conceptual differences between living and virtual labour into an undifferentiated concept of abstract labour, understood as labour represented in money.

As a result, the fundamental differences between capitalist production and the production of commodities by autonomous petty producers are all but lost. The analysis is, for example, unable to reflect the fact that wage labour performed under the command of capital produces value regardless of the sale of the product, or that the quantum of value created is determined by the quantity of (simple, socially necessary) labour performed. In contrast, petty producers make commodities but do not generally employ wage workers, in which case even though value is created in production, the quantity of value created is *a priori* undetermined; it can be inferred only by reference to the actual price of the commodity. The conflation between capitalist production and petty commodity production (and,

in effect, the election of petty commodity production as the subject of study) makes it difficult to grasp the conceptual difference between the production and the realization of value, and this difficulty has created serious troubles for the further development of the 'abstract labour' approach (see, for example, de Vroey, 1985).

The relative neglect of the performance of abstract labour in production and the dislocation of NSH into circulation are associated with the failure to recognize that the content of the production process is transformed when it involves wage labour. More generally, in spite of their differences, this approach to Marx's theory of value adopts the point of view of circulation favoured by the embodied labour views (see section 1). Because of this, 'anomalies' such as the distinct value-creating capacity of skilled workers are not eliminated at the passage from production into circulation by the NSH of labours but, instead, carried over into circulation, where they have to be dealt with by force of assumptions and with recourse to market processes such as supply and demand.

Another way to see the limits of the abstract labour version is by scrutinizing its conception of money. As the analysis holds that money represents abstract labour by force of convention or law, and argues that labours are abstracted only through actual sales, the NSH of labours is rendered ideal. It becomes an *ex post*, arbitrary comparison between labours independently performed and whose products happened to be exchanged for money; their reality and necessity are lost. Consequently, this approach denies or, at least, cannot grasp the objective nature of abstract labour. Instead of being an aspect of human labour abstract labour becomes, paradoxically, a characteristic of the products of labour that are exchanged for money.

2.7 - CONCLUSION

This chapter has made a systematic analysis of the real processes behind the abstraction of labour and the equivalence between distinct commodities in exchange. This led to the determination of the concept of abstract labour, the identification and description of the normalization, synchronization and homogenization of labours, and the definition of the two kinds of abstract labour which count as value, living and virtual labour.

This was the basis for a thorough critique of two of the most widely accepted views of the relation between abstract labour and value: the 'traditional' approach of Dobb, Meek and Sweezy, that was later incorporated into the Sraffian critique of Marx, and the more modern 'abstract labour' version of Marx's value theory, advocated by followers of Rubin.

It was shown that both approaches analyse the capitalist economy from the point of view of circulation and not production. This is at the root of their otherwise opposing (mis)conceptions of abstract labour and value. Whilst the embodied labour approach reduces abstract labour to physiological labour, and value to the quantum of the latter, the abstract labour version dislocates the determination of abstract labour and value into circulation, where the causal factor is the exchange of commodities for money.

In spite of their deficiencies, each of these views has something to commend it; the embodied labour approach recognizes that value is created by labour in production, while the abstract labour version points out that money is necessary for the expression of value. However, both views fail to recognize the specific characteristics of the relationship between commodity-producing labours and money; for this reason, they cannot adequately reflect the

processes of normalization, synchronization and homogenization of labours. The failure to do this leads to several theoretical inconsistencies, that were considered in detail in sections 5 and 6 above.

Further research should integrate the normalization, synchronization and homogenization of labours, and the concepts of living and virtual labour, with the formal derivation of the concepts of abstract labour, value and money. In addition, the NSH of labours may be employed to integrate analyses of the labour process with studies of value production, such that the pitfalls of the traditional approach and the inconsistencies of the abstract labour version of Marx's theory of value are avoided. This would, moreover, provide a deeper understanding of the social determinants of technology.

3 - LABOUR, VALUE AND MONEY: A COMMENT ON MARX'S CRITIQUE
OF JOHN GRAY'S PROPOSED MONETARY REFORM

Throughout his mature work Marx often criticizes the 'Ricardian socialist' economists whom he regards as utopians. This chapter concentrates on Marx's attack against one of their main proposals: a monetary reform aiming at the institution of a labour-money. Although several authors advanced some version of this idea, John Gray's formulation is focused upon here, as his is probably the best-argued case for such a reform.¹

Despite this, neither the review of Gray's plans nor the cogent presentation of Marx's critiques are the main objectives of this chapter. Marx's polemic against the labour-money scheme is used here as a means of scrutinizing his own theory of money and of shedding light on some of its remarkably rich perspectives. This study of Marx's theory of money builds upon the analysis in chapter 2, and concentrates on the relations between labour and value and the study of the functions of money.

Limited to these aims, this chapter does not attempt to give a comprehensive account of the various formulations received

¹ The English economist John Gray (1799-1883) is not widely known. He was influenced by Smith, Mill, Malthus and McCulloch, and his ideas were close to Robert Owen's. Deeply impressed by the distress he witnessed in London during economic crises, he joined the ranks of the social reformers of his time. Gray wrote his first book in 1825, the *Lecture on Human Happiness*, which was soon followed by others. In 1826 he founded in Edinburgh, with his brother James, the firm of J. and J. Gray and started publishing the 'North British Advertiser'. Gray's business success may have been influential in his increasing political moderation, which ultimately led him to retire from the public scene after publishing the *Lectures on the Nature and the Use of Money*, in 1848 (see Beer, 1953, A. Gray, 1947, Foxwell's introduction to Menger, 1899, and, especially, Kimball, 1948).

by the labour-money idea, nor does it discuss the influence of the Ricardian socialists on the evolution of Marx's own thought.² In the first section of this chapter, Gray's monetary analysis is summarized, and his arguments for the introduction of a labour-money are presented; this is occasionally complemented with references to works by John Bray, Alfred Darimon and Pierre-Joseph Proudhon. In the second, the concepts of normalization, synchronization and homogenization of labour, developed in chapter 2, are used to clarify Marx's critiques of the labour-money scheme.

In the third, the relations between value, money and prices in Marx and in Gray are contrasted, and the processes of measurement of value and determination of prices in each of them are discussed. The other functions of money are subsequently discussed, and Marx's views are detailed and contrasted with Gray's. The final section summarizes the reasons why, for Marx, a labour-money cannot be money.

3.1 - JOHN GRAY'S MONETARY ANALYSIS

In the early and mid-nineteenth century, capitalist development was seen by many as generating widespread misery among the working class, manifest disproportionalities in production and frequent economic crises. Unequal exchanges apparently took place between 'capital' and 'labour' (the workers not receiving back the 'full fruit of their labour') and between capitalists themselves (some of whom did not command a 'just price' for their commodities or were exploited when taking credit). Based on these conceptions,

² See King (1983). This is an important issue, because although their works are plagued by inconsistencies and contradictions (some of which are discussed below), it would be a serious error to underestimate the Ricardian socialists' contribution to the development of socialist theory.

authors such as Gray, Bray, Proudhon, and Darimon elaborated plans to change the economic system.

They did not have the same perception of the causes of the social misfortunes of their time, and devised distinct arrangements for the future organization of society. Nevertheless, they shared to a large extent Robert Owen's socialist ideals, and their economic conceptions drew heavily upon Ricardo's. Their view of the labour theory of value (to which they were deeply committed) was, however, very distinct from the latter's. Perhaps most important of all, the Ricardian socialists did not reach the conclusion that labour is the sole source of value after a detailed scientific investigation. Rather, they upheld it as a moral postulate; for them, this is something that *ought to be*, and that is prevented from asserting itself in the real world because of the vices of the present system (see Rubin, 1979 [1929], pp.347-48).

This view is part and parcel of their emphasis upon the sphere of exchange as the locus of inequality and injustice in society, which should be reformed independently of changes in production. In accordance with this view, they saw the monetary sphere as the main source of economic problems. This is because it was 'wrongly' organized around the 'privilege' of precious metals such as gold and silver that, because of their monopoly of exchange equivalencies, were the sole form of money:

A defective system of exchange is not one amongst many other evils of nearly equal importance: it is *the* evil - *the* disease - *the* stumbling block of the whole society. (Gray, 1831, p.90)³

³ Darimon, an author with similar views, would add that 'The root of the evil is the predominance which opinion obstinately assigns to the role of the precious metals in circulation and exchange ... Thus the privilege held by gold

According to Gray, society creates money as a scale to measure the relative values of commodities and to enable them to be exchanged in correct proportions; as such, the quantity of money in circulation should be equal to the sum of prices, and money should be promptly available wherever its services were needed (Gray, 1831, pp.58-59). However, since for Gray it was easier to increase the production of the mass of commodities than to increase the production of gold, the requirement that the aggregate value of gold in circulation should equal the value of commodities for sale implied that commodities' prices would tend to *fall* as their quantity increased faster than the quantity of gold. This would bring distress instead of reward for the producers:

money ... must increase *just exactly and precisely* as fast as all other marketable commodities put together; for if it do *not* do this, every commodity multipliable by the exercise of human industry *faster than money itself* ... *will fall in money-price*; and from that instant, the greatest and most important principle in Political Economy ... - *Production the cause of Demand* is expelled from our commercial system. (Gray, 1848, p.69)

Therefore, Gray considered the underproduction of money the main evil of capitalism, while the overproduction of commodities was seen as impossible.⁴ However, he believed that all difficulties could be overcome:

and silver, that of being the only authentic instrument of circulation and exchange, is responsible not only for the present crisis, but for the periodic commercial crises as well' (quoted in GR, pp.115, 125).

⁴ For Proudhon, on the other hand, the 'main evil' was the unjust exchanges between 'capital' and 'labour', that prevented the workers from 'buying back' the produce of their labour and thus generated overproduction (see Allio, 1978, pp.124-25).

it would be by no means difficult to place the commercial affairs of society upon such a footing, that production would become the uniform and never failing cause of demand; or, in other words, that to sell for money may be rendered, at all times, precisely as easy as it now is to buy with money. (Gray, 1831, p.16; emphasis omitted)

Gray assumed that labour alone bestows value and that labour itself should be the measure of values. The problems caused by the use of gold (a valuable commodity) as a measure of values, and by the unequal exchanges between capitalists and workers and between capitalists themselves, could be solved through the creation of a valueless (paper) money, with average labour time as its unit. This would abolish the privileges enjoyed by gold; all commodities would be directly exchangeable for money and thus also for one another. For him, this arrangement would bring much needed stability to prices, which should correspond to the labour time necessary to produce commodities.

The possession of a given amount of labour-money would certify a worker's true participation in social production, and would enable him or her to draw commodities of an equivalent value from the whole of that produce. This system would ensure that society no longer had its progress hampered by a defective monetary system; justice would finally prevail, and exploitation would no longer take place.⁵

⁵ John Bray went much further. He was passionately committed to socialist ideals, and considered the exploitation of the workers 'the great wrong for which a remedy is wanted' (Bray, 1931 [1831], p.20). His views were remarkably developed: 'An exchange implies the giving of one thing for another. But what is it that the capitalist ... gives in exchange for the labour of the working man? The capitalist gives no labour, for he does not work - he gives no capital, for his store of wealth is being perpetually augmented ... The whole transaction, therefore, plainly shews that the capitalists ... do no more than give the working man, for his labour of one week, a part of the wealth which they

At the centre of Gray's system was the 'National or Standard Bank' that would print the labour-money. The capitalists would first sell all their property to that Bank, which would pay them a 'just' amount of labour-money; they would then be remunerated with the usual rate of profits to manage their old businesses. When they had produced commodities they would sell them to a network of 'National Warehouses', again receiving labour-money in return. As the value of all commodities for sale plus the value of the social stock of wealth would be exactly matched by the amount of money in circulation, money could always buy all goods at once:

Under the Social System, the money in circulation and the goods in the national stores would always be exactly equivalent, increasing and decreasing together. The money would be the demand, the property would be the supply, and the one would ever be equal to the other. (Gray, 1831, pp.251-52)

This implies that demand would never fail, in which case crises would be abolished forever:

by the adoption of the plan of exchange that is here described, goods of every kind would be made to pay for each other. Selling would be merely the act of lodging property in a particular place; buying would be merely the act of taking of it back again; and money would be merely the receipt which every man would require to keep in the interim between the period of selling and that of buying. (Gray, 1831, p.86)

obtained from him the week before! - which just amounts to giving him *nothing for something* - and is a method of doing business which ... is by no means compatible with a working man's ideas of justice' (p.49). Bray's ideas are discussed in Henderson (1985).

If the Warehouses could not, for whatever reason, sell a commodity, its producer would have to return the money previously received; if it could only be sold at a reduced price, he or she would have to return the difference and, if sold at a higher price, the producer would get the extra profit (Gray, 1848, p.117). Thus, in the end, producers would receive the sale price of commodities, and the role of the Warehouses would be that of a neutral intermediary.

The same group of authors also criticized credit and interest, although there is, again, no uniformity in their opinions. Gray himself does not have a firm point of view on these issues, and changed his (superficial) judgement between 1831 and 1848. At first he considered interest as a source of injustice, since its addition to commodity values would not only prevent workers from buying back the product of their labour, but also prevent borrowers from having a fair reward for their efforts. Later on, however, he changed his mind and argued that interest is a fair 'remuneration for capital', which should be preserved at least while his own ideas for the reorganization of society were not fully implemented (see Kimball, 1948, pp.33 et. seq.).⁶

The discussion above could be summarized by saying that to establish 'equivalent exchanges' we should, for Gray, Proudhon and others, have both a form of money that allowed for a full reward of the labour performed, and the absence of interest in the economy; this would render harmonious and fair an otherwise anarchic and unjust economic system.

⁶ In contrast, Proudhon wanted credit to be 'free', because for him capital was unproductive and could not generate income. The elimination of interest would also help realize one of his dreams of enabling everyone to become a capitalist (Proudhon, 1923, Vol.2, pp.129, 134, 139-40; see also Allio, 1978). Bray also deplores the injustices of the credit system, but does not specify how they should be dealt with.

3.2 - NORMALIZATION, SYNCHRONIZATION AND HOMOGENIZATION OF LABOUR AND THE LABOUR-MONEY SCHEME

A discussion of Marx's critique of the labour-money scheme requires an exposition of his theory of money. As seen in chapters 1 and 2, Marx derives the category of money from the contradictions in the concept of commodity, especially between use value and value, and concrete and abstract labour. The determination of commodity values was discussed in chapter 2 from the point of view of the normalization, synchronization and homogenization (NSH) of the labours involved in their production. In what follows, the connection between money and the NSH of labours is drawn out, by means of a review of the most important issues in Marx's critique of the labour-money scheme.

It was seen above that when a commodity reaches the market the private labour that produced it loses its individuality in a real process with three stages: (a) it is normalized with all individual labours producing the same kind of commodity, which converts each good into a mere sample of its kind; (b) it is synchronized with other labours that have produced the same kind of commodity in the past but which are concurrently for sale; and (c) it is homogenized with all other kinds of labour as the commodity is equalised with ideal money.

The labours of the distinct producers of each kind of commodity are normalized as every individual commodity reaches the market, where they are identified as samples of a single general product put up for sale. As such, all these labours are links of a unique labour process carried out throughout society; consequently, all individual commodities have the same value, irrespective of the different amounts of time required to produce them. Therefore, commodity

values are determined not by their own production time, but by the labour time socially necessary to produce them.

In the market, commodities produced in diverse moments of time are also assimilated, as they are parts of the same general product for sale. It is this synchronization of inherently diachronous concrete labour processes that ensures the continuity of production and exchanges through time. Therefore, the value of a commodity depends not on the labour time socially necessary when it was made, but on the social labour time presently necessary for its production, or the labour time socially necessary for its reproduction. Hence, in Marxian analysis values are not given to commodities once and for all when they are produced, but are socially attributed at every moment.

This does not contradict the fact that commodities themselves have value, but only reveals the social nature of this concept: as the production of commodities is one of the features of the social division of labour, individual commodities only exist as samples of their kind, and each kind of commodity only exists as one among several others. It is the general, historical process of production of each commodity, alongside all other production processes, that determines the values they have - and not the amount of physical labour one applies to produce a given good.

When different kinds of commodities are related to money the heterogeneous qualities of the concrete labours applied in their production are abstracted, and they are treated as materialisations of equal human labour. Those labours are then homogenized; only their essence of abstract labour becomes relevant, and only their quantitative relations matter. Commodity prices are thereby determined. It was seen in chapter 2 that the processes of normalization, synchronization and homogenization are carried out simultaneously, and each of them depends on the others for its fulfillment.

Let us now review Marx's critique of Gray's value analysis, starting with the 'sale' of commodities to the Warehouses. A preliminary point is that if a Warehouse should buy commodities and later on return to their original producer to pay him or her the price actually paid by the final consumers (as seen above), then the Bank, the Warehouses and the labour-money are unnecessary - they change nothing in the capitalist reality of uncertain sales, floating prices, and possible bankruptcies. If we ignore this possibility, three cases are worth discussing:

(a) If the 'just price' that the Warehouses would pay for a commodity was directly determined by the concrete labour time its producer had worked, the economy would be set into disarray: a chair produced in six hours would 'be worth' twice as much as a similar one that took a more efficient producer only three hours to make. The first chair could be exchanged for ten pounds of potatoes, say, while the second would only equal five pounds. Total productivity would then quickly fall, because everyone would try to make his or her commodities more 'valuable' by working less intensively. This absurdity stems from the neglect of the need to normalize commodity-producing labours, and from the assumption that their homogenization could be reduced into a direct identity between individual labour-time and money. This difficulty shows that Gray's Bank and Warehouses would have to be entrusted with the power to determine the labour time socially necessary to reproduce all commodities (or to establish their values), which considerably increases their role in the economy (see below).

(b) Suppose that we had a society whose sole form of money was paper labour-money, what Marx called 'labour-chits', as proposed by 'Weitling ... with Englishmen ahead of him and French after, Proudhon & Co. among them' (GR, p.135). If there was a change in labour productivity, this kind of currency would lead to severe difficulties. Suppose, for

example, that between two moments of time labour productivity doubled in all sectors of the economy. In this case, goods that in the previous period could be exchanged for a six-hour chit, say, would today be equivalent only to a three-hour one. In general terms, the synchronization of the labour processes carried out in the economy would lead to a constant appreciation of money in relation to commodities. This would, of course, benefit the cursed creditors at the expense of the debtors. Moreover, if productivity constantly changed,

[t]he time-chit, representing *average labour time*, would never correspond to or be convertible into *actual labour time*; i.e. the amount of labour time objectified in a commodity would never command a quantity of labour time equal to itself, and vice versa, but would command, rather, either more or less, just as at present every oscillation of market values expresses itself in a rise or fall of the gold or silver prices of commodities. (GR, p.139)

(c) Although metals would be, in Gray's scheme, commodities unfit to act as a measure of value, coins could be used as 'auxiliary instruments of exchange' (1831, pp.75-76) bought and sold for labour-money. In the case of copper and silver, if their production times varied their weights would change to preserve their money prices, while gold coins, given their importance and traditional use, would vary not in weight but in value (Gray, 1848, pp.180-84; see Viner, 1965 [1937], pp.208, 284).

To simplify matters and follow Marx's line of thought, let us consider the first case only, assuming that the typical coin was struck out of gold. Suppose that the Bank charged for gold coins the labour time socially necessary for their reproduction and that all labour productivities were kept constant, except in gold mining. If the latter constantly increased, the synchronization of gold-producing labours

would subject all coins to a constant depreciation and to the idealization of their name, or to a specific form of inconvertibility - between an old 'six-hour' coin and a new six-hour 'worth' commodity.

This would happen because, as gold productivity rose, the labour-time necessary to produce a coin of given size would decrease, and so would its value. Had labour productivity in gold-mining doubled, a given coin would be devalued, exchanging for only half as many commodities as it once did. An old 'six-hour' coin, say, would now equal commodities that took only three hours to make. Because of this,

Gold money with the plebeian title \times hours of labour would be exposed to greater fluctuations than any other sort of money and particularly more than the present gold money, because gold cannot rise or fall in relation to gold (it is equal to itself), while the labour time accumulated in a given quantity of gold, in contrast, must constantly rise or fall in relation to present, living labour time. In order to maintain its convertibility, the productivity of labour time would have to be kept stationary. (GR, p.135)

3.3 - MONEY AS THE MEASURE OF VALUES

For Marx money is a special commodity, equivalent to all the others and with the formal use value of representing values. Therefore, money is, for him, a social relation that derives from the form of social articulation and reflects the reciprocal dependence of commodity producers. As the money-commodity is for Marx a social value *a priori* (see below), the concrete labour of the individuals producing it (say, gold miners) is directly social labour, or the medium for the material expression of abstract labour.

Commodities' values are disclosed in a relation between each of them and money; as such, money is their measure of value:

The first main function of gold is to supply commodities with the material for the expression of their values, or to represent their values as magnitudes of the same denomination, qualitatively equal and quantitatively comparable. It thus acts as a universal measure of value ... It is not money that renders the commodities commensurable. Quite the contrary. Because all commodities, as values, are objectified human labour, and therefore in themselves commensurable, their values can be communally measured in one and the same specific commodity, and this commodity can be converted into the common measure of their values, that is into money. Money as a measure of value is the necessary form of appearance of the measure of value which is immanent in commodities, namely labour-time. (K1, p.188)

Marx stresses that as a measure of value money is merely ideal:

Every owner of commodities knows that he is nowhere near turning them into gold when he has given their value the form of a price or of imaginary gold, and that it does not require the tiniest particle of real gold to give a valuation in gold of millions of pounds' worth of commodities. In its function as measure of value, money therefore serves only in an imaginary or ideal capacity. (K1, p.190; see de Brunhoff, 1976 [1966])

The comparison of a commodity with money relates the values of them both. As the value of money is already social the value of the commodity is expressed in a price, as soon as the measure of value is divided into the conventional units of a standard of prices. Thus, as de Brunhoff and Ewencyk (1979, pp.49-50) rightly put it,

As measure of value and standard of prices, money gives a price form to commodities; it expresses the value of commodities in quantities of the money commodity (gold), and relates at the same time these magnitudes to a fixed unitary quantity of weight of gold, that is the standard of prices. The monetary name - the price form - expresses at the same time these two functions.⁷

It is this step that reduces the heterogeneous labours that create each commodity into homogeneous labour:

the price relations between commodities is the form in which an equivalence is established between different concrete labours, the means by which these are reduced to homogeneous labour that counts as value, what Marx called abstract labour. (Fine, 1980, p.124)

In contrast with Marx, Gray believed that no commodity could be a good (i.e. neutral) measure of value, because it would itself have a value. In this case, changes in the value of the money-commodity would modify the prices of all commodities irrespective of the stability of their own production times which, for him, would disturb the exchange process.⁸ Moreover, as he believed that increasing the production of metals was more difficult than increasing the

⁷ In other words, '[a]s measure of value, and as standard of price, money performs two quite different functions. It is the measure of value as the social incarnation of human labour; it is the standard of price as a quantity of metal with a fixed weight. As the measure of value it serves to convert the values of all the manifold commodities into prices, into imaginary quantities of gold; as the standard of price it measures those quantities of gold.' (K1, p.192).

⁸ In Ricardian fashion, Gray (1831, pp.60-61) argues that 'money, as it is at present used, is merely a commodity, the price of which rises and falls, like every other commodity, in proportion as the demand for it is great or small ... Thus the value of money is continually liable to change, and if weights and measures were subject to the same kind of variation, greater confusion and mischief would not be the result.'

production of the other commodities as a whole, prices would tend to *fall*, thus reducing profits and ultimately generating a deflationary crisis (see de Brunhoff, 1979, pp.25-27 and Cartelier, 1987).

However, this is neither a reasonable theory of value nor a good theory of crisis. Gray's valueless measure of value is simply not a measure since, as we have seen, the Bank-Warehouses complex would be the true measurers of value in his scheme. Furthermore, even if prices tended to fall over time this would not by itself lead to the interruption of sales; other factors such as outstanding debts or difficulties in the renewal of fixed capital would also have to be invoked, but Gray fails to mention them. In more general terms, Gray's statements reveal a defective understanding of the synchronisation and normalisation of labours that are inherent in commodity production, whereby changes in the value of money modify the price of the inputs at the same time and in the same proportion as they alter the price of the outputs (see Clarke, 1994, for a critique of the Ricardian socialist theory of crisis).

Another side of Marx's critique of the labour-money scheme regards its identification of prices with values. For Marx, at the same time that prices express commodities' values they allow for the possibility of differences between values and prices, for him an intrinsic characteristic of the price form.⁹ The distinction between prices and values for him is a consequence of the nature of commodity production, and it has a role in the social regulation of the amounts of concrete labour applied in the production of each use value. For example, the changing relations between supply and demand, that do not affect the values of commodities, may

⁹ These differences may occur irrespective of the transformation problem, that is ignored here (see K1, pp.196-97; the transformation problem is discussed in chapters 5 and 6).

cause variations in their prices, which signal to the producers the relation between the wants of society and social production and, thus, guide their allocation of labour (see chapter 2).

According to Marx, the identification of prices with values reveals the unfamiliarity of Gray and others with the nature of commodity production. As Gray considered labour-time to be the measure of values and proposed a labour-money, *time* would become the unit of both values and prices. Moreover, the Warehouses' automatic purchase of any commodity would make private labour immediately social, which renders prices identical to values. Values would then either directly express commodities' individual labour times (which would deprive society of the relations between supply and demand as a signalling mechanism and lead to the collapse of production that was noted in section 2), or would result from determinations made by the Bank and the Warehouses (which would make them the signalers, instead of the market).

These ideas would, for Marx, imply the end of commodity production and thus of capitalism itself. For him, commodities are products of private labour, and money is an immediately social value. The 'identity' between commodities and money - to which Gray aspires - makes private labour social from the outset, or makes it produce *money*, and no longer commodities. As such, the discussion of the conditions for the conversion of commodities into money becomes meaningless:

The first basic illusion of the time-chitters consists in this, that by annulling the *nominal difference* between real value and market value, between exchange value and price - that is, by expressing value in units of labour time itself instead of in a given objectification of labour time, say gold and silver - ... they also remove the real difference and contradiction between price and

value. Given this illusory assumption it is self-evident that the mere introduction of the time-chit does away with all crises, all faults of bourgeois production. The money price of commodities = their real value; demand = supply; production = consumption; money is simultaneously abolished and preserved; the labour time of which the commodity is the product, which is materialized in the commodity, would need only to be measured in order to create a corresponding mirror-image in the form of a value-symbol, money, time-chits. In this way every commodity would be directly transformed into money; and gold and silver, for their part, would be demoted to the rank of all other commodities. (GR, p.138; see also CCPE, pp.321-22 and Backhaus, 1974 [1969])

In Gray's economy the Bank would necessarily control every aspect of production and enjoy absolute power. As the general buyer and seller of commodities, we have seen that it would have to evaluate the social labour time necessary to produce each commodity and thus to oversee all production processes. It would also have to become the general planner - both because the average productivity in all sectors of the economy would have to be kept constant (or grow at identical rates) to avoid the development of disproportions, and because supply would have to balance demand, both in the aggregate and in each market, to make the labour-money really convertible into commodities.¹⁰ In the end, the Bank would order, control, receive, determine the price and pay for all products, and all individuals would be subordinated to its decisions. But then we are no longer in commodity production and thus no longer in a capitalist society - an

¹⁰ Gray (1831, p.38) seems to be at least partly aware of this: 'The specific object of the proposed commercial association ... is to make production the infallible cause of demand, and to give the greatest possible effect to labour and capital ... by means of a thoroughly organized plan of production, exchange, distribution, and accumulation'.

inevitable result of Gray's proposals to reform the economic system.

3.4 - OTHER FUNCTIONS OF MONEY

Marx's critique of the labour-money scheme can be understood more thoroughly by following his analysis of the other functions of money. As money personifies abstract labour, its concrete equivalence with commodities, achieved in their sale, makes them 'acquire universal social validity as an equivalent-form' (K1, p.201). When commodities are exchanged for money and money occupies their place, it acts as a means of circulation.¹¹

Since for Marx exchanges occur between commodities with equal value, the role of money as a means of circulation requires the previous normalization, synchronization and homogenization of the labours involved. However, the gold coins used as means of circulation are subject to wear and tear, and commodities are soon exchanged for coins worth less than their face value. The continuity of exchanges in these circumstances shows that, although it is essential that in an abstract exchange the value of the amount of money involved equals the value of the commodity, in circulation as a whole, matters are different: what has to be preserved is no longer the value each participant at all times has, but the value-equivalence of the commodities exchanged; in this case, money operates merely as a representative or symbol of their value. Symbols of money may thus perform exactly the same service as pure gold:

¹¹ As there is no *a priori* guarantee that the value of any specific commodity will be realized in money, the need to sell implies the possibility of non-sale, or the formal possibility of crises (see TSV2, pp.507-09 and Shaikh, 1978).

The fact that the circulation of money itself splits the nominal content of coins away from their real content, dividing their metallic existence from their functional existence, this fact implies the latent possibility of replacing metallic money with tokens made of some other material ... Relatively valueless objects, therefore, such as paper notes, can serve as coins in place of gold. (K1, pp.222-24)

Many divergences between Marx and Gray stem from their different views of money. For Marx, money is the unity of a measure of value and a means of circulation:

The commodity which functions as a measure of value and therefore also as the medium of circulation, either in its own body or through a representative, is money. (K1, p.227; see Lapavitsas, 1991)

Gray, on the contrary, sees money as a single, static and non-contradictory object that as measure of value/standard of prices (he does not distinguish them) would concretely, in a sale, certify the labour-time necessary to the production of each commodity. It should not be any valuable object, so that it could be most easily reproduced and thus capable of reflecting the values of commodities. In its role as a means of circulation, Gray wanted labour-money to be present in the same quantity as all goods and wealth put together, which would enable it to purchase all commodities at the same time. Hence, Gray's misconception of the synchronisation of labour processes leads him to a confusion between the fact that the sum of prices of all commodities must equal the sum of money paid for them, and the idea that that sum of prices would have to equal the total of money in circulation, or that the velocity of circulation of money should be unity.

For Marx (GR, p.213), Gray makes no more than a 'clumsy confusion between the contradictory functions of money'. To

be a measure of values, money must itself have value, since the determination of the amount of social labour in a private product is made first through an ideal comparison of the commodity with money. The result of this comparison is a price, given in the units of the standard of prices, which floats around the commodity's value. This is followed by a concrete equivalence between commodities and money, in a market sale. Such sales may, however, be made against mere token representatives of money, such as paper notes (see Arnon, 1984).

The exchangeability of commodities does not for Marx result from the intervention of money (as is the case for Gray) but is a characteristic of commodity production. The units that compose the means of circulation participate in several exchanges in their lifetime (or in each period), simply by circulating more than once. They may thus realize, in the aggregate, values several times greater than their own, while in each exchange they are present in amounts whose value equals that of the commodity for which they are exchanged. All in all, Marx's money contrasts sharply with Gray's; it is the dialectical unity of a measure of value, that works as an ideal body, with a means of circulation that may be substituted by symbols.

Let us now see how the functions of reserve value, means of payment, and world money derive in Marx from the unity of the measure of values and the means of circulation. The value of money, like the value of any other commodity, is given at each moment by the social conditions of its reproduction; it is not 'preserved' through time inside the physical body of a coin, and changes in this value surface in the form of generalised variations in commodity prices. At the same time, money is always exchangeable for any commodity, due to the unvarying nature of values and of value-producing labour processes.

On this basis it is possible to understand why interruptions in the circulation of money may lead to its use as a reserve value and to the formation of hoards. Hoarding plays in Marx a very important role, both because the volume of circulating money must respond to the needs of circulation itself, and because money represents universal wealth, that may be retained to symbolize a general power of purchase. However, this power is not absolute, since the value of the hoard depends upon its size and the present value of money (see Lapavitsas, 1992).

If commodities are sold today to be paid for only later (or if they are rented), their buyer becomes a debtor. To close that transaction, s/he must either sell commodities and then transfer a given amount of means of circulation to the creditor, or gradually hoard money as reserve value and later on use it to pay the outstanding debt. As such, money is used as a means of payment.

Attending to the needs of trade and finance, all functions of money are performed in the international sphere by world money, that is value in pure form and an incarnation of abstract labour recognized as such in every single nation. Of course, all domestic currencies must be convertible into world money to allow national commodities to be exchanged for foreign ones, or to insert nationally performed labours into worldwide commodity production.

Gray makes no careful discussion of money either as reserve value, means of payment, or world money. In his best case, presented above, labour-money would be associated with an appreciating currency and with persistent turbulence in creditor-debtor relations, at the same time as hoards would systematically gain purchasing power. Money hoards would not be, however, normal since for him production was directly aimed at consumption:

A man ... having acquired property in the standard stock of the country, as proved by his possession of standard bank-notes, is sure to require *something* in exchange for them - the notes themselves being of no value whatever. (Gray, 1848, pp.118-19)

In the international sphere, gold would continue to perform the role of world money:

gold, silver, and copper goods, (coins,) of two distinct kinds, or classes, should be manufactured ... The first class would be required to pay balances to foreign countries; to buy goods from foreign countries ... to enable persons, disposed to store up metallic property, to do so [etc.] (Gray, 1831, pp.77-78)¹²

It may be concluded that Gray's valueless labour-money, that should merely reflect the intrinsic values of commodities, could at best be a means of circulation (which is ironic, since in his economy commodities would not really circulate as such). The functions of measure of value, means of payment, reserve value and world money, intrinsically linked to gold's cursed 'exclusivity', would either not be performed by money but by the Bank-Warehouses complex, or would still be carried out by gold. Gray's failure to articulate the diverse functions of money is related to his Ricardian conception of the general equivalent, which leads him to try to derive these functions from money's role as means of circulation. The impossibility of doing so is related to the (underlying) assimilation of commodity exchange with barter, and the (associated) conception that the value of money derives from its use as a currency, and not from the conditions of production of the money-commodity (see Pilling, 1980, pp.191-93).

¹² The 'second class' of coins would be used, as seen above, to make small payments.

3.5 - CONCLUSION

The proponents of the labour-money scheme recognized labour as the source of value and wished to eliminate economic crises and unjust exchanges. To do so, they devised a Bank that would take as its starting point the fact that (at a very high level of abstraction), if supply equals demand, prices equal values. The Bank would then try to do the converse - identify prices with values as a means of making supply match demand. However, as the Bank guarantees an 'equivalent exchange' for anything produced, labours would be socialized *a priori* regardless of their specific form or content and, therefore, every commodity would also be money. Since prices would be identical with values, money would lose its role, products would no longer be commodities - and the very basis of capitalism would be abolished, as a result of this effort to implement Say's law.

It was also shown above that the proposed labour-money could not fulfil all the functions of money, and that it would in fact be a non-money, in Marx's sense. This is a consequence of the fact that Gray's labour-money has no role to play in the socialization of commodity-producing labours, a task that is carried out by the Bank and the Warehouses, which occupy in his scheme the role of money in Marx's.

In sum, Gray's misapprehension of the relations between money and commodities lead him either to assume away the contradictions of commodity production, or to transfer their solution to a Bank. When he analyses money, he says that gold is a commodity like any other, and a mere symbol of value. In this case any commodity, or all of them, could also be money, since the privileges of gold have no objective basis. At the same time, he shares the opposite (and also mistaken) view that money is totally different from commodities, the former being added to the world by

convention, after the full development of commodity production.

These difficulties do not happen by chance. When the authors who advocate a labour-money declare 'labour' to be the essence of values but do not admit a commodity as the general equivalent, they make it transparent that their 'labour' is not what Marx calls 'abstract labour'. Their notion of labour comes hand-in-hand with the belief that commodity production and capitalism are eternal, ahistorical relations of production. In fact, the labour that they see behind every commodity is merely labour devoid of the concrete forms that it acquires in use values; it is the expenditure of human energy required by any enterprise, all over history - in this respect, it is equivalent to physiological labour. As the production of all goods demands, at all times, the expenditure of this kind of labour, it seems possible to them that commodities were immediately exchangeable for money and for each other.¹³

It was shown in chapter 2 that physiological labour is fundamentally distinct from Marx's abstract labour, and that the former is incompatible with the historicity of Marx's concept and the transitory nature of commodity production. As a result of his inconsistent views of the relations between labour, value and money, Gray cannot arrive at the Marxian concept of value; quite the contrary, his thought is vulnerable to charges of inconsistency and self-contradiction. This is what leads his monetary system

¹³ The concept of capital of the Ricardian socialists is also ahistorical. For them, capital is labour accumulated and put in motion to create more wealth, or even mere monetary savings (see Gray, 1831, pp.18, 40, and Bray, 1931 [1831], p.55). There is an obvious parallel between these authors and Ricardo, whose theory of value has been criticized by Marxists for failing to distinguish between abstract and concrete labour (see chapters 2, 5 and 6, Fine, 1986a, and Shamsavari, 1991, pp.241-43).

to the paradox of ultimately denying the very kind of social division of labour that he sees as eternal.

According to Marx, Gray's mistaken appreciation of commodity production and money is closely associated with the utopian belief that changes in the form of money would be sufficient to modify in a fundamental way the form of socialization of private labour and to change the capitalist economy as a whole. Similarly, for Marx it is not through 'equivalent exchanges' that we eliminate capitalism, exploitation or crises - and it should be borne in mind that he explains surplus value on the assumption of equivalent exchanges between capitalists and workers.¹⁴

Marx's critique of the case for 'free credit' was equally emphatic, but it will not be detailed here. He considers that the elimination of interest would neither prevent exploitation nor allow workers to buy back the products of their labour, but would only (at best) do away with one of the forms of surplus value. Consequently, it would affect the distribution of income among the exploiters but would not, in itself, improve the lot of the working people. Marx used this as an example of the utter ignorance of the nature of capitalist credit shared by those who made such proposals.¹⁵

¹⁴ Marx develops these points further in the *Critique of the Gotha Programme* (Marx, 1989a [1891]).

¹⁵ For Marx (K3, p.743), 'As long as the capitalist mode of production persists ... interest-bearing capital persists as one of its forms, and in fact forms the basis of its credit system. Only that same sensationalist writer who wanted commodity production to continue while money was abolished (Proudhon) could dream up the enormity of a *credit gratuit*, the ostensible realization of the pious wish arising from the petty-bourgeois standpoint.' Credit and interest in Marx are discussed in detail by Fine (1985-86, 1988); for a stimulating interpretation of the historical context of the Ricardian socialists' ideas, see Bologna (1993a, 1993b).

This chapter has reviewed the case for the institution of a form of money based on labour-time, as advanced by John Gray, and commented on similar ideas held by, among others, Bray, Proudhon and Darimon. Their conceptions were criticized following Marx's line of argument, according to whom their theoretical weaknesses are symptoms of an ahistorical approach to economics and of an undeveloped analysis of commodity production. This has led to the conclusion that the proposed labour-money cannot be money, and that if it were to exist money could no longer be what it now is. However, the main objective of this chapter concerned the study of Marx's own theory of value and money. The analysis of this theory from the point of view of the normalization, synchronization and homogenization of labours has not only helped to identify the weaknesses and contradictions in Gray's proposals, but it also allowed some important aspects of Marx's own theory to be brought to light.

4 - THE DEVELOPMENT OF THE CONCEPTS OF TECHNICAL,
ORGANIC AND VALUE COMPOSITION OF CAPITAL:
AN INTERPRETATION

Marx's innovative approach to scientific analysis led him to introduce several new concepts into the economic literature of his time and to attribute a distinctive significance to many already-known categories, which he felt would be relevant to a critical understanding of the capitalist mode of production. However, the unfinished status of many of his works,¹ and the complexity of his method, make the meaning of several of his concepts and categories far from obvious. Their role in Marx's investigation of capitalism is discussed in a vast body of literature and a number of polemics, both of which considerably increase our understanding of Marxian economics and the objects of its critical inquiry. The controversy about the nature of value is probably the best-known case, although debates concerning abstract labour, money, price of production, rent, the rate of profit and its tendency to fall, among others, are also prominent. This chapter is concerned with the concept of composition of capital.

Although several interpretations of Marx's notion of composition of capital exist in the literature, its complexity and relevance have not always been fully recognized. It is an extremely important concept, because it is central in some of Marx's most relevant and polemical analyses. The concept of composition of capital is essential, for example, to the discussion of the use of

¹ Marx's most important economic writings are the *Contribution to the Critique of Political Economy*, the *Grundrisse*, the *Theories of Surplus Value* and *Capital*. Only the *Contribution* and the first volume of *Capital* were completed during his lifetime, while the others were left in a more or less unfinished state and were published posthumously.

machines in industry and accumulation of capital, the transformation of values into prices of production, the law of the tendency of the rate of profit to fall, and the distinctions between the various types of rent.

Widely different understandings of the composition of capital found in the literature may, at least partly, result from Marx's use of three forms of the concept: the technical composition of capital (TCC), the organic composition of capital (OCC) and the value composition of capital (VCC). While the content of each term is quite evident at times, there are moments when Marx seems to use them randomly or even in a contradictory way; as a consequence, large parts of his inquiry may look arbitrary and puzzling. A brief review of differing views of the composition of capital may give a better idea of the difficulties involved in this study.

Paul Sweezy (1968 [1942]), for example, believes that the composition of capital is the relation of constant (c) to variable capital (v) in the total capital used in production. For him, although '[s]everal ratios would serve to indicate this relation, ... the one which seems most convenient is the ratio of constant capital to total capital' (p.66). Thus, he defines the OCC as $q = c/(c+v)$. This formulation has its roots in Bortkiewicz (1949 [1907]), and it is also adopted by Seton (1957) and Desai (1989). In his discussion of the transformation problem Sweezy follows Bortkiewicz's treatment and, as may be gathered from the discussion below and in chapter 5, attributes the different sectoral rates of profit to the distinct value and not organic compositions of the invested capital, which is contrary to Marx's argument.

Michio Morishima (1973) is closer to the mark in his understanding of the TCC and the VCC, but misinterprets the OCC by defining it as the name Marx would have given to the

VCC, in case the TCC underwent changes such that all relative values were left unaltered (in other words, for him OCC is the name of the VCC when the changes in the TCC are precisely reflected by changes in the VCC - as if productivity increase is proportionate across all sectors). Morishima believes that Marx only defined the OCC to simplify his treatment of technical changes, but it will be shown here that this is incorrect.

Nobuo Okishio (1974), who elsewhere formalizes the so-called 'Okishio theorem' dismissing Marx's analysis of the law of the tendency of the rate of profit to fall (see Okishio, 1961), works with the value composition of capital under the name of the organic composition in his treatment of the transformation, and he is by no means the only one to do so. Kliman and McGlone (1988), Laibman (1973), Lipietz (1982), and Meek (1956b), for example, share the same belief that the OCC can be defined once and for all as c/v , and they transform values into prices on the basis of this view. For Marx matters were slightly more complicated, as will be seen below. Roemer (1979), in his analysis of the law of the tendency of the rate of profit to fall, also calls OCC what should really be termed VCC, and his whole discussion bears the mark of this misconception.

Shaikh (1977), in his now classic paper proposing an iterative solution to the transformation problem, calls OCC the ratio $(c+v)/v$, which cannot be accepted as a valid formulation (see also Shaikh, 1973, p.38). In contrast, Sherman (1983) defines the OCC as $v/(c+v)$, and Mage (1963) calls OCC the ratio $c/(v+s)$, while Foley (1986), in an otherwise very useful textbook, defines the 'composition of capital' as $v/(c+v)$, and the 'OCC' as c/v . Finally, Groll and Orzech (1987, 1989a, 1989b, 1990), in their detailed discussion of the composition of capital (one of whose merits is the careful distinction of the TCC, OCC and VCC from each other) argue that the OCC is a long-run

value-concept while the VCC is measured in market prices and refers to the short-run, something with which Marx would probably not agree.²

The problems mentioned above are merely a sample of the difficulties one encounters in literature concerned with the composition of capital. This chapter searches for a correct interpretation of Marx's understanding of this concept. An important aspect of the study is the identification of progress Marx, himself, made in this field. In what follows it is shown that, while in the *Grundrisse* Marx does not yet employ the concepts which he would later call the composition of capital, in the *Theories of Surplus Value* he introduces the physical (technical) composition of capital and the organic composition of capital and, finally, in *Capital* he uses the technical composition of capital, the organic composition of capital and the value composition of capital in their most developed form.³

The progressive introduction of these terms reflects the increasing refinement of Marx's own perception of the matters at stake and, as will be shown, allows him to clarify the presentation of his own point of view. As the argument progresses, Marx's views on the composition of capital and the precise meaning of TCC, OCC and VCC will become clear. Although the form of Marx's arguments changes,

² There is no space to make a detailed critique of Groll and Orzech's work, that shows a highly sophisticated understanding of the composition of capital. See, however, Fine (1990a).

³ The *Grundrisse* was written in 1857-58 and the *Theories of Surplus Value* derive from the 1861-63 manuscript, which also contributed to all three volumes of *Capital*. Apart from that, *Capital 3* was written in 1864-65 and 1875; *Capital 2* in 1865 (or 1867), 1870, and 1877-78, and *Capital 1* was written after the other two volumes, published in 1867 and improved for later editions (see Engels' Preface to K2, and Dussel, 1985, 1988, 1990, Negri, 1984, Oakley, 1983, 1984, 1985, and Rosdolsky, 1977 [1968]).

it will not escape the reader that the problems with which he deals and the results he reaches are essentially unaltered through the years.

The argument develops in two steps. This chapter first follows Marx's analysis of the composition of capital in the absence of technical change. Each concept used by Marx will be defined and its introduction justified. The second section discusses how the definitions of TCC, OCC and VCC are affected by technical progress. It will be concluded that one of Marx's aims in distinguishing the OCC from the VCC is for a focused analysis of a particular case, where the accumulation of capital occurs with technological innovation. The arrangement of this chapter, which contrasts a static case to the dynamic imposed by technical change, is essential, not only to the orderly introduction of the concepts that concern us, but also to the appreciation of their contradictions, limits and changes. Moreover, this arrangement is useful in its direct connection with the distinct levels of abstraction involved in the analysis of the composition of capital.

4.1 - THE STATIC CASE

For Marx the productivity of labour is technically determined, and he defines it as the mass of means of production that can be processed into final commodities in a given labour time:

The specific development of the social productivity of labour in each particular sphere of production varies in degree, higher or lower, depending on how large a quantity of means of production are set in motion by a definite quantity of labour, hence in a given working-day by a definite number of labourers, and, consequently, on how small a quantity of labour is required for a given

quantity of means of production. (K3, p.163; see also K1, p.773).

This notion is captured by the concept of *technical composition of capital* (TCC, earlier entitled physical composition of capital). The TCC is the physical ratio between the mass of material inputs (dead labour) and the amount of living labour necessary to transform them into a definite output:

A certain quantity of labour-power, represented by a certain number of workers, is required to produce a certain volume of products in a day, for example, and this involves putting a certain definite mass of means of production in motion and consuming them productively - machines, raw materials etc ... This proportion constitutes the technical composition of capital, and is the actual basis of its organic composition. (K3, p.244)

As the TCC is a relation between a heterogeneous bundle of use values (the material inputs) and a quantity of labour, it cannot be measured by a single index; for similar reasons, a comparison of the technical composition of capitals engaged in distinct sectors (weaving and shipbuilding, say, where the use value of the inputs processed per hour of labour is very different) is impossible. We know, however, that in capitalism all produced inputs, raw materials in Marx's terminology, tend to be commodities; because of this, the technical composition of capital can be assessed in value terms. This value-assessment of the TCC gives us the *organic composition of capital* (OCC), or the value of the means of production required to absorb one hour of living labour in a particular industry:

The organic composition [of capital] can be taken to mean the following: Different ratios in which it is necessary

to expend constant capital in the different spheres of production in order to absorb the same amount of labour. (TSV3, p.387).

The OCC is, for Marx, an immediate value-reflex of the TCC, and both are determined in the sphere of production. Because of this, the OCC is called a 'technological composition' that synthesizes, in value terms, the technical relations typical of the production process under consideration. In other words, the OCC relates the total value of the constant capital (irrespective of the circulation-based distinction between its fixed and circulating parts) to the total labour time required to transform the inputs (whether paid or unpaid). Marx refers to the OCC in the following terms:

The ratio between the different elements of productive capital ... [can be] determined ... [b]y the organic composition of productive capital. By this we mean the technological composition. With a *given productivity* of labour, which can be taken as constant so long as no change occurs, the amount of raw material and means of labour, that is, the amount of constant capital - in terms of its *material elements* - which corresponds to a definite *quantity of living labour* (paid or unpaid), that is, to the *material elements* of *variable* capital, is determined in every sphere of production (TSV3, p.382)⁴

There is, however, a major difficulty with the analysis of capital from the point of view of its organic composition.

⁴ In other words, if 'it is assumed that no change has taken place in the organic composition of capital ... [or] that no change has taken place in the manner of production decreasing or increasing the amount of living labour employed in proportion to the amount of constant capital employed ... [*the same number of workers* as before is required ... in order to work up the same volume of raw material with the same amount of machinery etc., or, where there is no raw material, to set into motion the same amount of machinery, tools, etc.' (TSV2, p.276)

As the value of a bundle of means of production is the product of the values of its components by the quantities used up, it seems impossible to tell whether changes in a certain OCC result from modifications in the underlying TCC (and thus from changes in the technology of production and the productivity of labour in the industry under consideration) or from alterations in the value of the means of production used up (that reflect changes in the production processes of other industries). For Marx there was no ambiguity, though. As the OCC is defined as an immediate value-reflex of the TCC, it must not change if the TCC is kept constant, whatever the changes in the value of the elements of capital may be, despite the fact that the OCC is a value-concept. Having made this clear, Marx says:

[I]f one assumes that the organic composition of capitals is given and likewise the differences which arise from the differences in their organic composition, then the *value ratio* can change although the technological composition remains the same ... If there is any change in [e.g.] the value of variable capital independent[ly] of the *organic composition*, it can only occur because of a fall or a rise in the price of means of subsistence that are not produced in the sphere of production under consideration but enter into it as commodities from outside ... The organic changes and those brought about by changes of value can have a similar effect on the rate of profit in certain circumstances. They differ however in the following way. If the latter are not due simply to fluctuations of market prices and are therefore not temporary, they are invariably caused by an organic change in the spheres that provide the elements of constant or of variable capital (TSV3, pp.383-86, various paragraphs)

Thus, Marx is clearly aware that, for a given production process, changes in the value-ratio between the (fixed and

circulating) constant capital and the (paid and unpaid) quantity of labour technically required, can stem from either variations in the value of the inputs or technological ('organic') changes in production. Based on this definition of the OCC, and well aware that value changes should not be conflated with technical modifications, Marx planned to discuss in Chapter 2 of Part 3 of *Capital*:⁵

1. Different organic composition of capitals, partly conditioned by the difference between variable and constant capital in so far as this arises from the *stage of production* - the absolute *quantitative* relations between machinery and raw materials on the one hand, and the quantity of labour which sets them in motion. These differences relate to the labour-process. The differences between fixed and circulating capital arising from the circulation process have also to be considered ...

2. Differences in the relative value of the parts of different capitals which do not arise from their organic composition. These arise from the difference of value particularly of the raw materials, even assuming that the raw materials absorb an equal quantity of labour in two different spheres.

3. The result of those differences is diversity of the rates of profit in different spheres of capitalist production (TSV1, pp.415-16)

Marx eventually realized that an adequate treatment of these problems would require an even more refined distinction between the effects of the application of different technologies and the consequences of the use of inputs of distinct values. With this aim, he introduces, in *Capital*,

⁵ Oakley (1983) analyses the stages of Marx's elaboration of *Capital* and the various subdivisions considered for the book; see also Dussel (1988), Negri (1984) and Rosdolsky (1977 [1968]).

the concept of *value composition of capital* (VCC). The VCC is a circulation-based concept, defined as the ratio between the value of the circulating part of the constant capital (inclusive of the depreciation of fixed capital) and the variable capital required to produce a unit of the commodity (in other words, it is the ratio between the two components of the commodity's cost price; see D. Harvey, 1982, p.126). Let us now follow Marx's discussion of the same problem both before and after the definition of the VCC. This will show the place of the VCC in his analysis, and its precise relation to the TCC and the OCC.⁶ Marx wants to point out that if the technical and organic compositions of two capitals are equal, but the value of the means of production used up is different, the value-assessment of their TCCs from the point of view of circulation may mislead the analyst into the belief that their TCCs are also distinct. In the *Theories of Surplus Value* he argues as follows:

In the case of capitals of equal size ... the organic composition may be the same in different spheres of production, but the value ratio of the primary component parts of constant and variable capital may be different according to the different values of the amount of instruments and raw materials used. For example, copper instead of iron, iron instead of lead, wool instead of cotton, etc. (TSV3, p.386; emphasis omitted).⁷

⁶ Clarke (1994) compares Marx's thoughts on the composition of capital with the relatively less developed approach of Ricardo (1951 [1821]).

⁷ Marx presents the same argument elsewhere: 'With capitals in different branches of production - with an otherwise equal physical composition - it is possible that the higher value of the machinery or of the material used, may bring about a difference. For instance, if the cotton, silk, linen and wool {industries} had exactly the same physical composition, the mere difference in the cost of the material used could create such a variation' (TSV2, p.289; emphasis omitted).

The introduction of the VCC allowed Marx to be more rigorous, and, in *Capital*, he says:

[I]t is possible for the proportion [the TCC] to be the same in different branches of industry only in so far as variable capital serves simply as an index of labour-power, and constant capital as an index of the volume of means of production that labour-power sets in motion. Certain operations in copper or iron, for example, may involve the same proportion between labour-power and means of production. But because copper is dearer than iron, the value relationship between variable and constant capital will be different in each case, and so therefore will the value composition of the two capitals taken as a whole. (K3, p.244)

These examples concern the impact of a difference in the value of the means of production used per labour hour in two sectors which otherwise have equal TCCs and OCCs. For example, if copper and iron utensils (or wool and cotton clothes) are manufactured with identical technologies, and thus by capitals with the same technical and organic compositions, Marx says that their value compositions will be distinct because the values of the material inputs are different. In the first example, from the *Theories of Surplus Value*, he measures the TCCs only through the OCCs. However, as the OCC reflects the TCC from the point of view of the production process, it disregards the differing value of the inputs consumed by the two capitals. Marx is reduced, then, to 'observing' that capitals that use means of production of differing values may have equal TCCs and OCCs. In the second case, presented in *Capital*, his argument proceeds differently, by directly pointing out that if two capitals in distinct sectors have the same technical (and thus organic) composition, but use means of production of different value, the equality of their TCCs and OCCs would appear distorted by their differing VCCs.

The inverse situation was also the subject of Marx's attention. If we now suppose that two sectors had equal VCCs, could they still have different OCCs (and hence distinct TCCs)? His answer is in the affirmative:

A capital of lower organic composition ... considered simply in terms of its value composition, could evidently rise to the same level as a capital of higher organic composition, simply by an increase in the value of its constant parts ... Capitals of the same organic composition can thus have a differing value composition, and capitals of the same percentage {value} composition can stand at varying levels of organic composition, displaying various different levels of development of the social productivity of labour. (K3, pp.900-01)

Therefore, if in two production processes a given quantity of labour power transforms different masses of means of production into the final product, they will have different TCCs and thus distinct OCCs. However, if the value of these inputs is such that the ratio between the constant and the variable capitals used up is equal, then their value compositions will be equal. From the two cases above we can see that differences in the value of the constant and variable capital consumed in distinct industries concern their VCCs but not their OCCs, while differences in their technologies of production affect their OCCs but this may not be accurately reflected by their VCCs. The concept of OCC is important because it allows the study of technical differences (or changes, as will be seen below) in the sphere of production, irrespective of the associated value differences (or changes), while the VCC cannot distinguish between them. Given Marx's view that production, and not circulation, is the dominant sphere in capitalism, it will come as no surprise that he considered differences in the

TCCs and OCCs theoretically more important than differences in the VCCs.⁸

A final example will show the precise scope and limitations of the concept of OCC and the place of the VCC in Marx's analysis:

[L]et us assume that the raw material is dearer and labour (of greater *skill*) is dearer, in the same proportion. In this case {capitalist} A employs 5 workers, where {capitalist} B employs 25, and they cost him £100 - as much as the 25 workers, because their labour is dearer (their surplus labour is therefore also worth more). These 5 workers work up 100 lbs. of raw material, y, worth {£}500 and B's workers work up 1,000 lbs. of raw material, x, worth {£}500 ... The value ratio here - £100 v to {£}500 c is the same in both cases, but the *organic composition* is different (TSV3, p.387)

This example is clear enough. Although capitalists A and B spend equal amounts of money on means of production and labour power - which means that their capitals have equal value compositions - Marx states that their organic compositions are *distinct* because they adopt different technologies of production.

⁸ See GR, pp.99-102. The relative preponderance of production is also quite obvious in the following passage, which refers to a situation where two capitals have distinct TCCs and OCCs, but equal VCCs: '[W]e immediately see, if the price of the dearer raw material falls down to the level of that of the cheaper one, that these capitals are none the less similar in their technical composition. The value ratio between variable and constant capital would then be the same, although no change had taken place in the technical proportion between the living labour applied and the quantity and nature of the conditions of labour required' (K3, p.900).

We can therefore conclude that, although both the OCC and the VCC are value-assessments of the TCC, they are undeniably distinct concepts. Their difference stems from the manner in which the value of the means of production and labour power is assessed. An OCC-comparison of the technologies of production adopted in two industries will give results that are independent of differences in the values of the components of capital, because the OCC is defined with reference to the sphere of production. Distinctions (or, as shown below, variations) in the values of constant and variable capital are detected by the VCC, a separate concept that pertains to the sphere of circulation.⁹ Only if this point is made absolutely clear does it become possible to apprehend Marx's definition in full:

The composition of capital is to be understood in a twofold sense. As value, it is determined by the proportion in which it is divided into constant capital ... and variable capital ... As material, as it functions in the process of production, all capital is divided into means of production and living labour-power. This latter composition is determined by the relation between the mass of the means of production employed on the one hand, and the mass of labour necessary for their employment on

⁹ For example: '[I]n this part of the work we also proceed from the premise that commodities are produced under normal social conditions and are sold at their values. Hence, we assume in each case that the productivity of labour remains constant. In effect, the value-composition of a capital invested in a branch of industry, that is, a certain proportion between the variable and constant capital, always expresses a definite degree of labour productivity. As soon, therefore, as this proportion is altered by means other than a mere change in the value of the material elements of the constant capital, or a change in wages, the productivity of labour must likewise undergo a corresponding change, and we shall often enough see, for this reason, that changes in the factors *c*, *v*, and *s* also imply changes in the productivity of labour' (K3, pp.50-51).

the other. I call the former the value-composition, the latter the technical composition of capital. There is a close correlation between the two. To express this, I call the value-composition of capital, in so far as it is determined by its technical composition and mirrors the changes in the latter, the organic composition of capital (K1, p.762)¹⁰

4.2 - THE DYNAMIC CASE

It is entirely legitimate to ask at this point, which values could possibly establish equality between the OCCs of two sectors with the same TCCs, if the value of the means of production consumed per hour of labour is different in each case? In what follows it will become clear that, while in the static case discussed above such values are abstractions, in a dynamic environment they do exist and, moreover, the distinction between the OCC and VCC provides invaluable clues to an understanding of the accumulation of capital.

Marx firmly believes that in capitalism there is a tendency towards the development of the techniques of production. Technical change is usually introduced in individual firms, raising their TCCs and, consequently, their OCCs and VCCs. As a result of the adoption of new technologies, these firms enjoy a higher level of productivity and may generate a greater mass of use values with the same labour power. As the individual value of their commodities falls below their social value, innovative capitalists can capture surplus profits, which is the object of the whole exercise (see chapter 2).

¹⁰ Or, what amounts to the same, '[t]he organic composition of capital is the name we give to its value composition, in so far as this is determined by its technical composition and reflects it.' (K3, p.245; emphasis omitted).

Competition between firms of the same branch will generalise these technical advances, which reduces the value of the commodity and eliminates the scope for permanent absorption of surplus profit by some capitalists (Cleaver, 1979, 1990, Lebowitz, 1992, 1994a, and Weeks, 1981, discuss in detail the social forces in action beneath capitalist competition and technical change). This process of introduction and subsequent diffusion of technical innovation is typical of an intensified expanded reproduction of capital,¹¹ where a given mass of living labour processes an ever larger quantity of means of production into outputs. In this case the technical and the organic compositions of all capitals tend to rise through time, and the values of all commodities tend to fall. In abstract terms, it may be said that in every cycle of production the individual, as well as the social (or the economy-wide), TCCs and OCCs rise,¹² and that

¹¹ According to Fine and Harris (1979), when the accumulation of capital is based upon its concentration it takes the form of an extended expanded reproduction, with a constant composition of capital. In developed capitalism, where centralization predominates, accumulation tends to take the form of an intensified expanded reproduction. In this case, the use of machinery for the production of relative surplus value brings about rises in the TCC and in the OCC.

¹² In the *Grundrisse* Marx was already aware of the importance and the wide implications of this fact. Despite this, he had not yet defined the appropriate concepts to develop the analysis of the composition of capital, and we read in p.389: 'if the total value of the capital remains the same, an increase in the productive force means that the constant part of capital (consisting of machinery and material) grows relative to the variable, i.e. to the part of capital which is exchanged for living labour and forms the wage fund. This means at the same time that a smaller quantity of labour sets a larger quantity of capital in motion' (emphasis omitted).

In p.831 we have: 'The fact that in the development of the productive powers of labour the objective conditions of labour, objectified labour, must grow relative to living labour ... appears from the standpoint of capital not in such a way that one of the moments of social activity - objective labour - becomes the ever more powerful body of the other moment, of subjective, living labour, but rather

the values of all commodities (inclusive of labour power) fall. In other words, the TCC and OCC of capital-in-general rise with time, and this leads the value of all commodities to fall.

One must, however, be extremely careful to distinguish the level of analysis. As far as an individual capital is concerned, or with the analysis at the level of many capitals, the introduction of a technical innovation leads to a change in its technical, organic and value compositions. As time passes and the new technique is more widely adopted, its VCC tends to fall, because of the reduction in the values of its inputs. However, matters are quite different with regard to capital-in-general. At this level of analysis, technical progress is synonymous with an increase in the technical and organic compositions, and immediately leads to a reduction in the unit value of the output.

As technical change potentially modifies the values of all commodities, whether directly or indirectly, it can safely be concluded that the determination of the OCC and VCC in a dynamic environment is contingent upon the way changes in production affect commodity circulation. An adequate understanding of this situation can only be achieved through an analysis of capital-in-general, where the values that exist at the beginning of the cycle ('earlier values'), at which the inputs are purchased, are higher than those at which the output is sold ('later values'; see chapter 2, Carchedi, 1984, 1991, 1994, and Fine, 1990a, 1992). Even though this is a conceptual distinction rather than a

... that the objective conditions of labour assume an ever more colossal independence, represented by its very extent, opposite living labour, and that social wealth confronts labour in more powerful portions as an alien and dominant power.' (see also pp.388-98, 443, 707 and 746-47)

chronological one, it is of extreme relevance for the analysis of accumulation and the dynamics of circulation:

[S]ince the circulation process of capital is not completed in one day but extends over a fairly long period until the capital returns to its original form ... great upheavals and changes take place in the market in the course of this period ... [and] in the productivity of labour and therefore also in the real value of commodities, [and] it is quite clear, that between the starting-point, the prerequisite capital, and the time of its return at the end of one of these periods, great catastrophes must occur and elements of crises must have gathered and develop ... The comparison of value in one period with the value of the same commodity in a later period is no scholastic illusion ... but rather forms the fundamental principle of the circulation process of capital (TSV2, p.495; emphasis omitted)¹³

Now, which set of values is to be used in the calculation of the OCC and the VCC, the older and higher or the newer and lower? For Marx, the answer is unambiguous. The OCC reflects the TCC at the initial (higher) values of the component parts of capital, before the new technologies affect the value of the output, while the VCC reflects the TCC at the final (lower) values of the elements of constant and variable capital, or the values already transformed by the

¹³ In the same vein, Marx says in K2, p.185: 'If social capital value suffers a revolution in value, it can come about that his [the capitalist's] individual capital succumbs to this and is destroyed, because it cannot meet the conditions of this movement of value ... These periodic revolutions in value thus confirm what they ostensibly refute: the independence which value acquires as capital, and which is maintained and intensified through its movement ... This sequence of metamorphoses of capital in process implies the continuous comparison of the change in value brought about in the circuit with the original value of the capital' (see also TSV3, p.154, and Bologna, 1993b).

process of production and accumulation. Therefore, the VCC measures the TCC in the values determined by the changing conditions of production, and newly established in the sphere of exchange. On the other hand, the OCC measures the TCC on the basis of the values prevailing at the time of production, regardless of the impact of changes in the production process upon the conditions of exchange. Consequently, it measures the results of accumulation with reference to the process of production of (surplus) value (see Fine, 1989, 1990a).

In other words, the OCC is determined at values prior to the normalization, synchronization and homogenization (NSH) of the labours applied in production, while the VCC is determined after these labours are NSH (see chapter 2). As a result, changes in the social VCC will capture the previous rise in the social TCC as well as the ensuing fall in commodity values, inclusive of those that have been used as inputs in the last production period. Consequently, the VCC will tend to increase (if it increases at all) more slowly than the social TCC and OCC:

This change in the technical composition of capital ... is reflected in its value-composition by the increase of the constant constituent of capital at the expense of its variable constituent ... However, ... this change in the composition of the value of the capital, provides only an approximate indication of the change in the composition of its material constituents ... The reason is simple: with the increasing productivity of labour, the mass of the means of production consumed by labour increases, but their value in comparison with their mass diminishes. Their value therefore rises absolutely, but not in proportion to the increase in their mass. (K1, pp.773-74)

The social OCC, on the other hand, is measured at 'earlier' values, and rises in concert with the social TCC. In our

context of intensified expanded reproduction and increasing centralization of capital (where, as we have seen, technical progress is the main lever of accumulation), Marx points out that we may well find that the TCC and the OCC grow even faster than social capital itself:

[T]he development of the productivity of labour ... and the change in the organic composition of capital which results from it, are things which do not merely keep pace with the progress of accumulation, or the growth of social wealth. They develop at a much quicker rate, because simple accumulation, or the absolute expansion of the total social capital, is accompanied by the centralization of its individual elements, and because the change in the technical composition of the additional capital goes hand in hand with a similar change in the technical composition of the original capital. (K1, p.781)¹⁴

It is quite obvious at this stage that a proper distinction between the OCC and the VCC can only be made by means of a comparison between contrasting situations. If one compares two capitals at the same moment of time, as was done in the first part of this chapter, one would contrast the value of the constant capital productively consumed per hour of labour (which defines their VCCs), with the mass of means of production processed in the same labour-time (that determines their TCCs and OCCs). Despite the conceptual clarity of this distinction, the values that should be used

¹⁴ Or, from another point of view: 'Since the demand for labour is determined not by the extent of the total capital but by its variable constituent alone, that demand falls progressively with the growth of the total capital, instead of rising in proportion to it, as was previously assumed. It falls relatively to the magnitude of the total capital, and at an accelerated rate, as this magnitude increases. With the growth of the total capital, its variable constituent, the labour incorporated in it, does admittedly increase, but in a constantly diminishing proportion.' (K1, pp.781-82).

in calculation of the OCC are abstractions. The difficulty of calculating the OCC in the static case does not imply that it is without use as a concept, since it was precisely in a static comparison of capitals with distinct organic compositions that Marx developed, in Part 2 of *Capital 3*, his transformation of values into prices of production (see chapter 5).

In a dynamic environment, as discussed in the second part of this chapter, matters are remarkably different, and both the OCC and VCC of a capital undergoing technical change can be calculated. It was shown above that they diverge because the OCC is an *ex ante* evaluation of the value of the (fixed and circulating) constant capital technically required per hour of (paid and unpaid) labour, while the VCC is the (*ex post*) ratio between the new value of the (circulating) constant and the variable capital spent in the last phase of production. Thus, in the dynamic case, the production-based nature of the OCC is reflected in its measurement at the time of production, while the circulation-based VCC is calculated at end of production, when labours are normalized, synchronized and homogenized, (new) values are determined and commodities are about to enter the sphere of circulation. It was with reference to this dynamic context, where the organic composition of a single capital changes through time because of technical progress, that Marx presented his law of the tendency of the rate of profit to fall, in Part 3 of *Capital 3*.

4.3 - CONCLUSION

The use by Marx of the notions of TCC, OCC and VCC may at times look ambiguous, since both the OCC and the VCC assess the TCC in value terms. However, we have seen that these concepts have very different theoretical roles, and the terminological changes Marx gradually adopts almost

certainly indicate his growing awareness of the importance of the composition of capital for the analysis of the accumulation process.

This chapter confirms, and builds upon, previous findings in Fine (1982, 1983, 1989, 1990a, 1992), Fine and Harris (1979) and Weeks (1981). The results can be summarized as follows. Marx defines the OCC as the means to assess the TCC, a technical variable, in value terms. He recognizes that a value-measurement of the TCC would be affected by differences or changes in the TCC itself, as well as by differences or changes in the values of its components. Since the OCC is incapable of discriminating any phenomenon outside the sphere of production (inclusive of the distinction between fixed and circulating capital and of the effects of differences or changes in the process of value creation upon the actual level of commodity values), Marx develops the concept of VCC, defined as the value ratio between the (circulating) constant and the variable parts of the advanced capital.

In a static situation the OCC assesses the TCC at values that cannot be but abstractions. However, in a dynamic environment, these values are theoretically calculable and the OCC is determined (for capital-in-general) by an assessment of the constant capital at the 'old' (*ex ante* and higher) level of values, while the VCC evaluates the TCC at the 'new' (*ex post* and lower) values of the inputs. These 'new values' prevail at the passage to the sphere of circulation, where the evolving conditions of production determine a new level of values and these are expressed in money terms as the new set of prices. The use of both OCC and VCC as forms of assessing the TCC enable Marx to discuss the processes of capital accumulation and technical change from the points of view of production and circulation simultaneously, which is otherwise impossible.

Therefore, in spite of the difficulties arising from Marx's inability to conclude much of his work, it is still possible to identify the precise meaning of the concepts of TCC, OCC and VCC and to situate them relative to the main body of his writing. Apart from dispelling widespread misconceptions with regard to the meaning of these concepts, this chapter has also provided the grounds for further research on the intrinsic connections between issues such as the production of relative surplus value, the transformation problem and the law of the tendency of the rate of profit to fall, which have generally escaped the literature.

5 - ORGANIC OR VALUE COMPOSITION OF CAPITAL?
A RE-EVALUATION OF THE TRANSFORMATION OF VALUES
INTO PRICES OF PRODUCTION

The transformation of values into prices of production, that Marx discusses in the first chapters of *Capital 3* (especially chapter 9), has given rise to one of the best-known controversies in political economy.¹ According to Marx, the exchange relations between commodities cannot be determined by their values alone, otherwise capitals with distinct organic compositions would have different rates of profit. In reality, however, competition and the possibility of migration from one sector to another create a tendency for the equalization of profit rates. This is achieved by the sale of commodities at prices of production that are not proportional to values.

The consequences of the transformation of values into prices of production are far-reaching, for it links the internal aspects of capitalism (the performance of labour in production, and exploitation through the extraction of surplus value) with the external (the structure of relative prices, the expression of surplus value as industrial profit, interest and rent, and the relation between the revenues of the classes; see Lipietz, 1984, p.355). The centrality of the transformation, given the structure and aims of Marx's work, and the counter-intuitive solution adopted by Marx, have ensured that it would receive the attention of a vast array of writers of widely different

¹ The literature on the transformation is vast; hundreds of papers, articles and books discuss this issue, from widely different points of view. There is no need nor space for a survey of these contributions here. See, however, Desai (1989, 1992), Dostaler (1978), Dostaler and Lagueux (1985), Fine (1986a), Fine and Harris (1976, 1977, 1979), Laibman (1973), Lee (1990), Mandel and Freeman (1984), Mohun (1991), Rosdolsky (1977 [1968]), Steedman (1981a), Sweezy (1968 [1942], 1949) and Yaffe (1974).

persuasions. The interest on this issue remains alive even after one hundred years of the publication of the third Volume of *Capital*, and the polemic with regard to the status of the problem and the impact of the various solutions has become increasingly sophisticated.

Some writers dismiss the transformation problem as the expression of fundamental flaws in Marx's method, and argue that it shows that analyses based on his theory of value are doomed to failure (see, for example, Bohm-Bawerk, 1949 [1896], Samuelson, 1957, 1971, 1973, 1974, and Steedman, 1977). Others blame the difficulty on a trivial mistake in Marx's procedure, and argue that its correction indicates the continuing relevance of his work (see, for example, Dumenil, 1980, and Foley, 1982). Yet others have argued that Marx's approach to the transformation is cogent, and that it needs no 'correction' (Yaffe, 1974). Unfortunately, however, most writers have misinterpreted the context of Marx's problem and the nature of his solution. In other words, irrespective of their verdict on the importance of the transformation, the adequate solution, or its impact upon the remaining parts of *Capital*, and regardless of the merits of the individual contributions to the debate, the discussion has often focused a problem distinct from Marx's.

The contrast between Marx's approach and most of his interpreters' was first pointed out by Fine (1983), based on a careful study of the differences between the organic and value compositions of capital. The following study draws on Fine's work to make an unconventional reading of *Capital* 3 in which the organic, and not the value, composition of capital is the pivot of the transformation. This reading is not only internally consistent, but also closer than conventional interpretations to Marx's own aims and the logic of his approach.

5.1 - SURPLUS VALUE, PROFIT, AND THE COMPOSITION OF CAPITAL

The terms of Marx's transformation of values into prices of production are spelled out in the first part of *Capital* 3.² The first issue that he tackles in this Volume is the distinction between the concepts of surplus value (S) and profit (Π). In accordance with *Capital* 1, surplus value is the value created in excess of the value of the labour power purchased; in contrast, profit is the excess of the value of the product over the value of the constant (C) and variable (V) capital invested (see Dumenil, 1980, pp.16-18). Therefore, the value of the constant capital is irrelevant for the determination of the surplus value; however, it affects the magnitude of profit (see K3, pp.136-39, 144-45).

The same holds for their rates. Whilst the rate of surplus value, $e = S/V$, measures the surplus value created per unit of variable capital, the rate of profit cannot account for the distinct role of the means of production (MP) and labour power (LP) in (surplus) value-production.³ The general rate

² In this chapter, 'value' is the money-expression of the labour time socially necessary to reproduce commodities, determined prior to the transformation, and 'price' stands for price of production. Both are measured in money. Therefore, the transformation of value into price of production is a change in the form of expression of social labour in money, and not a transformation of labour time into quantities of money (as the Sraffian tradition wants; see Elson, 1979b, and Kliman and McGlone, 1988, for interesting analyses of this issue). The reader should beware of the possible confusion that is caused by the need to conform with the current literature.

³ 'Because the rate of profit measures surplus-value against the total capital and the latter is its standard, surplus-value itself appears in this way as having arisen from the total capital, and uniformly from all parts of it at that, so that the organic distinction between constant and variable capital is obliterated in the concept of profit. In actual fact, therefore, surplus-value denies its own origin in this, its transformed form, which is profit; it loses its character and becomes unrecognizable.' (K3, p.267; see also pp.126-27 and 139-40)

of profit (R) measures the relative increase in social capital's ability to produce value. It is given by:

$$(1) \quad R = \frac{S}{C + V} = \frac{e}{(C/V) + 1}$$

where C/V is the value composition of capital (see K3, p.161).

In the sequel, Marx considers the impact on R of changes in the quantity, quality and value of the inputs used up, and the effect of variations in the rate of surplus value and turnover time. In chapter eight of *Capital* 3 Marx notes, in an important but seldom mentioned passage, that the same factors that affect the general rate of profit may also cause differences between the individual rates of profit of capitals in distinct spheres of production:

[T]he rates of profit in different spheres of production that exist simultaneously alongside one another will differ if, other things remaining equal, either the turnover times of capitals invested differ, or the value relations between the organic components of these capitals in different branches of production. What we previously viewed as changes that the same capital underwent in succession, we now consider as simultaneous distinctions between capital investments that exist alongside one another in different spheres of production. (K3, p.243)

Subsequently, he makes a detailed analysis of the concepts of technical, organic and value composition of capital (TCC, OCC and VCC; see chapter 4). This leads to chapter nine of the book, where Marx presents the transformation of value into price. It is essential to distinguish the influence of the OCC from the VCC in the rate of profit, otherwise it cannot be understood why Marx concentrated on the OCC in the transformation.

5.2 - THE OCC AND THE TRANSFORMATION PROBLEM

It was seen in chapter 4 that the TCC is determined by the material ratio of MP and LP, or the technology of production. The OCC is a value-assessment of the TCC that mirrors differences or changes in the latter, and does not discriminate any phenomenon outside the sphere of production; because of this, the values used to determine the OCC are abstractions (in the static case) or the 'old' values (in the dynamic case). In contrast, the VCC synthesizes the conditions of production and circulation; it is given by the assessment of the TCC at the new set of values determined by the technology of production. Therefore, the difference between OCC and VCC corresponds to the distinction between differences or changes in the TCC and in the values of its components. Both concepts are useful, because they allow the analysis of capital accumulation from the points of view of production and circulation simultaneously.⁴

Both the OCC and the VCC affect the rate of profit. The OCC connects this rate to the sphere of production, where living labour produces (surplus) value, and the VCC links it to the sphere of circulation, where the growth of the advanced capital is measured by the new values of the MP and LP. Marx describes the different impact on the rate of profit of changes in the OCC and the VCC saying:

⁴ 'Failure to appreciate this distinction [between the OCC and the VCC] reflects a failure to understand the complex unity of production, exchange and distribution ... The new levels of productivity are created in the sphere of production, but only become established as new values through the exchange of the commodities concerned. Thus the VCC is only formed on the basis of the complex articulation of production, exchange and distribution. The OCC, however, exists at a higher level of abstraction; it exists within the sphere of production abstracting from exchange and distribution.' (Fine and Harris, 1979, pp.60-61)

Fluctuations in the rate of profit that are independent of changes in either the capital's organic components or its absolute magnitude are possible only if the value of the capital advanced, whatever might be the form - fixed or circulating - in which it exists, rises or falls ... If the changed circumstances mean that twice as much time, or alternatively only half as much, is required for the same physical capital to be reproduced, then given an unchanged value of money ... the profit is also expressed accordingly in twice or only half the monetary sum. But if it involves a change in the organic composition of the capital, the ratio between the variable and the constant part of the capital, then, if other circumstances remain the same, the profit rate will rise with a relatively rising share of variable capital and fall with a relatively falling share. (K3, pp.237-38)⁵

Thus, while a variation in the value of the MP (because of technical change in another sector, say) modifies the VCC, the value of the newly produced commodities and the rate of

⁵ Marx goes to greater lengths in K3, pp.246-48. Taking $e = 100\%$, he says: 'If a capital invested in sphere of production A spends only 100 in variable capital against 600 in constant, for each 700 overall, while in sphere of production B 600 is spent in variable capital and only 100 in constant, then ... [the rate of profit] would be $100/700 = 1/7 = 14 \frac{2}{7}\%$ in the first case, and $600/700 = 85 \frac{5}{7}\%$ in the second case ... The same result follows in fact if the technical conditions in the one sphere of production are the same as in the other, but the value of the constant capital element is greater or less ... The distinction ... is simply this: The equalisation of A and B in the second case would require no more than a change in the value of the constant capital, either in A or B, with the technical basis remaining the same; in the first case, on the other hand, the technical composition itself ... would have to be transformed in order for such an equalisation to occur ... Capitals of the same size, or capitals of different magnitude reduced to percentages ... produce very different amounts of surplus-value and therefore profit, and this is because their variable portions differ according to the differing organic composition of capital in different spheres of production' (see also pp.142-45 and TSV2, pp.28, 383-88 and 426-27).

profit, the effect of a change in the quantity of simple labour necessary in production (because of technical change in this industry) is two-fold; first, it modifies the OCC and the quantity of (surplus) value created in production; second, it changes commodity values, the VCC and the rate of profit (see D. Harvey, 1982).

If Marx were primarily interested on the effect on the rate of profit of the distinct ratios between constant and variable capital, or the impact on prices of differences in the value of the MP and LP, he would focus on the VCC in the transformation. Even though most of the literature approaches the problem from this angle (see section 5), it does not correspond to Marx's own procedure. The emphasis on the OCC shows that Marx is primarily concerned with the effect on prices of the distinct (surplus) value-creating capacity of the advanced capitals, or the impact on prices of the different *quantities* of labour power necessary to transform the means of production into the output, *irrespective* of the value of the MP.⁶ Let us see why.

When the OCCs are compared, differences in the value of the MP and LP, and the impact of the conditions of circulation upon the rate of profit, are netted out, and only the conditions of production are influential. It follows that the capital with the lowest OCC employs relatively more

⁶ Ben Fine (1983, p.522) was the first to point out this essential feature of Marx's transformation: 'Because Marx discusses the transformation problem in terms of the organic composition he is concerned with the following problem: what is the effect on prices of differences across sectors in the quantities of raw materials worked up into commodities irrespective of the value of those raw materials? The transformation problem as traditionally concerned would wish to take account of differences in the values of raw materials. Usually, following on from this, account is also taken of the differences in the prices of raw materials (which differ from the differing values).' Fine concluded (p.523) that 'Marx did not get wrong the problem that *he* posed, although it differs from the one which he is presumed to have failed to solve.' Rubin (1975 [1928], chapter 18) has a similar approach to the problem.

workers, produces more surplus value, and has the highest profit rate, regardless of the commodity produced.⁷ The analysis of the rate of profit through the OCC is important for two reasons; first, because it pins the source of surplus value and profit firmly down to unpaid labour performed in production, which substantiates Marx's arguments that machines do not create value, and that the different forms of profit (industrial profit, interest and rent) are merely shares of the surplus value produced (see Caffentzis, 1993, Fine, 1985-86, and Shamsavari, 1991, pp.85-86).

Second, it connects the concepts being introduced into the analysis (rate of profit, the distribution of labour and surplus value, and price of production) with the sphere of production, that houses the essential elements for the analytical reconstruction of capitalism. These categories cannot be grounded upon circulation or distribution because, according to Marx, these spheres are relatively less important, and express in a distorted manner the concepts determined in production (see chapter 1, GR, pp.85-108, and Pilling, 1980).

In the aftermath, Marx illustrates how the general rate of profit is formed, and how the prices of production are determined, through a comparison of five capitals with distinct OCCs.

5.3 - FROM VALUES TO PRICES OF PRODUCTION

It is well-known that, in the transformation, Marx works with five capitals worth £100. Because of their distinct

⁷ 'When the rate of surplus-value ... is given, the amount of surplus-value depends on the organic composition of the capital, that is to say, on the number of workers which a capital of given value, for instance £100, employs.' (TSV2, p.376)

OCCs, these capitals have different profit rates. From the individual rates of profit an average is calculated, and from this average Marx derives the prices of production. In spite of its importance, the reason why Marx uses capitals of £100 in the transformation has escaped the literature; this has probably been attributed to convenience or ease of exposition (see, for example, Catephores, 1989, p.88). However, as Marx is interested in the OCC, this is a necessity:

[T]he organic composition of capital ... *must* be considered in percentage terms. We express the organic composition of a capital that consists of four-fifths constant and one-fifth variable capital by using the formula $80c + 20v$. (K3, p.254, emphasis added)

Why should Marx bother himself with the trivial assertion that $1/5$ is equal to 20%? Because once capitals are put in percent form ($60c+40v$, $70c+30v$, $80c+20v$, etc., which he does in the transformation and elsewhere), the ratio of means of production to labour power per unit of capital is placed at the forefront. As a result, variable capital becomes an index of the quantity of simple labour power purchased, labour performed and value and surplus value created (see K3, pp.137, 146, 243-46). In addition, there is a direct relation between the labour put in motion, the value of the output and the rate of profit (see below), which is precisely what Marx wants to emphasize in the transformation:

As a result of the differing organic compositions of capitals applied in different branches of production, as a result therefore of the circumstance that according to the different percentage that the variable part forms in a total capital of a given size, very different amounts of labour are set in motion by capitals of equal size, so too very different amounts of surplus labour are appropriated by these capitals, or very different amounts

of surplus-value are produced by them. The rates of profit prevailing in the different branches of production are accordingly originally very different. (K3, p.257)

Therefore, Marx uses the percent form in the transformation because this is a simple way to represent the OCC, and avoid the difficulties intrinsic to its measurement (see section 2 and chapter 4). Let us see what is the impact of this approach. The value of the commodities produced by the i th capital is:

$$(2) \quad \mu x_i = c_i + v_i + s_i = k_i + s_i$$

where μ is the $(1 \times n)$ vector of commodity values, x the $(n \times 1)$ vector of quantities produced, and k the cost price ($k = c + v$). The variable capital is:

$$(3) \quad v_i = \nu L_i$$

where ν is the value of labour power and L the quantity of labour power purchased; in the aggregate, $V = \nu L$. If M is the total value produced in the economy ($M = \mu x$), the total surplus value is:

$$S = M - (C + V) = M - (C + \nu L) \Rightarrow$$

$$(4) \quad S = \left(\frac{M - C}{L} - \nu \right) L = (m - \nu) L$$

where $m = (M - C)/L$ is the monetary equivalent of the working-hour (MEWH), or the value produced per hour of abstract labour (see chapters 2 and 6).⁸

⁸ Before the transformation, the MEWH can also be defined as the quantity of abstract labour necessary to produce a unit of the money-commodity (see Foley, 1982, and Mohun, 1993).

If the capital advanced in each sector ($k_i = c_i + v_i$) is adjusted to the percent form and called k^* ($k^* = \pounds 100$), the adjusted value of the product is:

$$(2') \quad \mu x_i^* = k_i^* + s_i^* = k^* + (m - \nu) L_i^*$$

where x^* , s^* and L^* are, respectively, the output, the surplus value and the labour power purchased per $\pounds 100$ of advanced capital (in what follows, they are called the adjusted output, surplus value and labour power). Equation (2') shows that the adjusted labour power, L_i^* , is an index of the adjusted value of the product, μx_i^* . Moreover, from (1), (2') and (4),

$$(5) \quad r_i^* = \frac{(m - \nu) L_i^*}{k^*}$$

Thus, the adjusted labour power is also an index of the adjusted rate of profit, as Marx wanted. Therefore, for two capitals i and j ,

$$\frac{r_i^*}{r_j^*} = \frac{L_i^*}{L_j^*}$$

The adjusted average rate of profit is:

$$(6) \quad R^* = \frac{\sum s_i^*}{\sum (c_i^* + v_i^*)} = \frac{\sum s_i^*}{nk^*} = \frac{(m - \nu) L^*}{nk^*}$$

where n is the number of capitals (in Marx's case, five). If p is the $(1 \times n)$ price vector, the adjusted prices of production are given by:

$$(7) \quad px_i^* = k^* (1 + R^*) = k^* + \frac{k^* \sum s_i^*}{nk^*} = k^* + \frac{\sum s_i^*}{n}$$

Therefore, the total product of every capital has the same adjusted price of production.⁹ These prices reflect the competition between capitals in different branches, that is predicated upon the possibility of capital migration (see chapter 6). They are such that the average capital of every branch has the same profit rate; because of this, all capitals are connected as parts of the whole, and profit becomes a dividend drawn from the social surplus value (see K3, pp.258, 298-99).

From (7) and the definition of k^* , the total adjusted price, P^* , is equal to the total adjusted value, M^* :

$$(8) \quad P^* = nk^* + S^* = C^* + V^* + S^* = M^*$$

By definition, the adjusted profit, πx^* , is the adjusted price minus the adjusted cost price:

$$(9) \quad \pi x_i^* = px_i^* - k^*$$

From (8) and (9), the total adjusted profit, Π^* , is equal to the total adjusted surplus value:

$$(10) \quad \Pi^* = P^* - nk^* = S^*$$

The aggregate equalities (8) and (10) should not be understood as two independent conditions, for they are one and the same (albeit influential at distinct analytical levels): total price is equal to total value *because* total profit is equal to total surplus value. Whilst the latter

⁹ See K3, p.264. This conclusion holds as long as the sum of variable plus circulating constant capital is equal in all sectors. This presumption is not essential for the results of the analysis.

holds because profit is nothing but redistributed surplus value, the former shows that price is merely a form of value. In other words, the equalities express the fact that value is created in production and not exchange, and that profit is a form of surplus value. Because of this, and the abstraction from the value of the inputs and the value of the money-commodity (see section 4), these equalities should be understood in the conceptual, not algebraic, sense that they express the relation between value and surplus value with their own forms of appearance, price and profit.

The adjusted (percent) form is convenient, because it reveals the effect of the distinct OCCs on the profit rate. However, because it equalizes all capitals to £100, this form changes the average rate of profit to R^* (even though the individual rates are unaltered), and modifies the quantities produced to x_i^* . Consequently, the adjusted value of the product, μx_i^* , may be different from the original, μx_i , and M^* may be different from M . Because of this, it is impossible to calculate the price vector, p , from the adjusted data, unless the technologies of production are given - which Marx declines to do.¹⁰

¹⁰ 'In our previous illustration of the formation of the general rate of profit, every capital in every sphere of production was taken as 100, and we did this in order to make clear the percentage differences in the rates of profit and hence also the differences in the values of the commodities that are produced by capitals of equal size. It should be understood, however, that the actual masses of surplus-value that are produced in each particular sphere of production depend on the magnitude of the capitals applied, since the composition of capital is given in each of these given spheres of production. Yet the particular rate of profit in an individual sphere of production is not affected by whether a capital of 100, $m \times 100$, or $xm \times 100$ is applied ... [I]t is evident that the average profit per 100 units of social capital, and hence the average or general rate of profit, will vary greatly according to the respective magnitudes of the capitals invested in the various spheres.' (K3, pp.261-62)

Since the percent form is necessary to assess the OCC, and as it precludes the calculation of actual prices, it cannot be argued that Marx's primary objective in the transformation is to devise a method for the calculation of the price vector, given the value of the means of production and labour power. Even though some (especially those in the Bortkiewicz tradition) may find this disappointing or worse, it is hardly surprising: the issue in the transformation is not the calculation of unit prices, but the claim that price is a more complex form of expression of social labour than value, for it takes into account the distribution of labour and surplus value across the economy (see Baumol, 1974, 1992). The input values are irrelevant to this end. In the light of the ensuing controversy, Marx's objectives are important for another reason: they can be fulfilled only if the transformation starts from differences in the OCC, and not the turnover times or the VCC.

As the change in the level of abstraction in the analysis and the difference between value and price are predicated upon the distinct OCCs, it follows that a capital with average OCC produces commodities whose price equals their value; if the OCC is greater (smaller) than average, the price is also greater (smaller) than the value (K3, pp.263-64). In addition, the price vector is equal to the value vector if the workers absorb the whole product (Pasinetti, 1977, has a Sraffian presentation of this result). From (2') and (7):

$$(11) \quad (p - \mu) x_i^* = (m - \nu) \left(L_i^* - \frac{L_i^*}{n} \right)$$

One problem remains to be addressed: the transformation of the value of the inputs.

5.4 - THE TRANSFORMATION OF INPUT VALUES

Marx abstracts from the input values in the transformation for two reasons; first, because they are irrelevant for the analysis of the relation between surplus value and profit (as seen above); second, because the simultaneous transformation of input and output values would make undetectable the process of distribution of surplus value. In this case, only two opposed and apparently unrelated systems, one measured in values and the other in prices, are visible. Price and profit cannot be assessed in the former, and value and surplus value are meaningless in the latter. However, if the value of the MP is abstracted from, as Marx does, the dichotomy is broken and the change in the level of abstraction can be 'seen', through the dislocation of surplus value across the branches.¹¹

In other words, the abstraction from the value of the MP shows the distribution of surplus value and the ensuing determination of prices of production, irrespective of the systematic modification of the exchange ratios brought about by the transformation. In addition, it nets out the effect of the transformation of the value of the money-commodity, that complicates further the relationship between values and prices, and tends to obscure the concepts being introduced.¹²

¹¹ 'When this moment of difference ("competition") is incorporated, the simple unity of cost price gives way to the complex unity-in-difference of production prices ... [The transformation] captures the structural tendency for each unit of capital to receive a profit measured as a function of total investment ($c+v$), and not by the amount of surplus value it has itself produced (a function of v alone). As a result the rate of profit is categorized on this stage as equal across the different units of productive capital.' (Smith, 1990, pp.166-67)

¹² See K3, p.142. Marx's abstraction from the transformation of the value of the money-commodity is another reason why actual prices cannot be calculated from his transformation tables (see Mattick, Jr., 1991-92, pp.51-52). Lack of understanding of this feature of Marx's approach distorts the results of procedures that follow Bortkiewicz (1949 [1907], 1952 [1906-07]) and Sweezy (1968 [1942], esp.

This implies that the age-old objection that Marx's transformation is wrong because he failed to transform the value of the inputs is inapposite (see section 5). For, if the value of the MP is immaterial in the transformation, their (changing) level is not influential in the result.

Because it separates cause from effect, Marx's procedure is adequate for the derivation of the concept of price of production. Once this concept is introduced, the analysis reaches a more complex level, where production is carried out entirely on the basis of price. When the realm of the OCC is superseded and the prices (no longer values) of the MP and LP enter into the picture, there are two reasons why the price of the commodity may be different from its value:

- (1) because the average profit is added to the cost price of a commodity, instead of the surplus-value contained in it;
- (2) because the price of production of a commodity that diverges in this way from its value enters as an element into the cost price of other commodities, which means that a divergence from the value of the means of production consumed may already be contained in the cost price, quite apart from the divergence that may arise for the commodity itself from the difference between the average profit and surplus-value. (K3, pp.308-09)¹³

pp.121-22). For a critique, see Mandel (1984), Rodriguez-Herrera (1994) and Yaffe (1974).

¹³ By the same token the cost price, previously equal to the value of the inputs, is now their price: 'It was originally assumed that the cost price of a commodity equalled the value of the commodities consumed in its production. But ... [as] the price of production of a commodity can diverge from its value, so the cost price of a commodity, in which the price of production of others commodities is involved, can also stand above or below the portion of its total value that is formed by the value of the means of production going into it. It is necessary to bear in mind this modified significance of the cost price, and therefore to bear in mind too that if the cost price of a commodity is equated with the value of the means of production used up in

This change in the point of view, from the conceptual derivation of price to the study of the economy at the level of price, leads to the further determination of the concept of price of production.¹⁴ Whilst the derivation of price departs from the distribution of the surplus value produced, in abstraction from the value of the MP and LP, the calculation of the price vector involves the current price of the inputs and the (price-) rate of profit (see K3, pp.259-65, 308-09 and 990-92). By the same token, the VCC surfaces as the ratio between the price of the MP and the wage bill. Therefore, Marx's method involves not only the progressive transformation of some concepts into others, but also gradual shifts in the content of each concept, whenever necessary to accommodate the evolution of the analysis.¹⁵

producing it, it is always possible to go wrong.' (K3, pp.264-65; see also pp.1008-10, TSV3, pp.167-68, Mattick, Jr., 1991-92, pp.47-51, Moseley, 1993b, p.168, and Yaffe, 1974, p.46).

¹⁴ 'It is of the essence of dialectical theories that simple and abstract determinations (prices proportional to values) lead to more complex and concrete ones (prices that are not so proportional) that cannot be simply reduced to the former. A theory can hardly be said to have refuted itself when it does what it sets out to do!' (Smith, 1990, p.167). The (changing) meaning of concepts in dialectical theory is discussed in chapter 1; see also Arthur (n.d.), Engels' Preface to K3, Murray (1988, 1993), Shamsavari (1991), and Smith (1990, 1993a, 1993b).

¹⁵ The concepts of price of production and general rate of profit are modified again when Marx discusses commercial capital: 'Commercial capital thus contributes to the formation of the general rate of profit according to the proportion it forms in the total capital ... We thus obtain a *stricter and more accurate definition* of the production price. By price of production we still understand, as before, the price of the commodity as equal to its cost (i.e. the value of the constant and variable capital it contains) plus the average profit on this. But this average profit is now determined differently. It is determined by the ... total productive and commercial capital together ... The real value or production price of the total commodity capital is therefore $k+p+m$ (where m is commercial profit). The price of production, i.e. the price at which the industrial capitalist sells as such, is therefore less than the real production price of the commodity; or, if we

Having done this, Marx can claim that his price of production is:

the same thing that Adam Smith calls 'natural price', Ricardo 'price of production' or 'cost of production', and the Physiocrats '*prix necessaire*', though none of these people explained the difference between price of production and value. We call it the price of production because in the long term it is the condition of supply, the condition for the reproduction of commodities, in each particular sphere of production. We can also understand why those very economists who oppose the determination of commodity value by labour-time ... always speak of prices of production as centres around which market prices fluctuate. They can allow themselves this because the price of production is already a completely externalized and *prima facie* irrational form of commodity value, a form that appears in competition and is therefore present in the consciousness of the vulgar capitalist and consequently also in that of the vulgar economist. (K3, p.300; see also p.268 and K1, pp.678-79)

Therefore, the impact of the transformation is two-fold; first, it explains why market exchanges are not directly determined by the labour time socially necessary to reproduce the commodities; second, it shows that price is a form of social labour. The merit of Marx's approach is that it accounts for both aspects of the problem, even though it does not lend itself to the immediate calculation of unit prices or the general rate of profit. In the context of *Capital*, Marx's procedure is important because it develops further the reconstruction in thought of the capitalist

consider all commodities together, the price at which the industrial capitalist class sells them is less than their value ... In future we shall keep the expression "price of production" for the more exact sense just developed.' (K3, pp.398-99; emphasis added)

economy, and substantiates the claim that living labour alone (and not the virtual labour represented by the values of the means of production) creates (surplus) value.

In contrast, approaches that argue that input values should be taken into account from the start, and that they should be transformed with the output values, often conflate the roles of living and virtual labour in the production of value, and can hardly distinguish between workers and machines in production (see chapters 2 and 6). It follows that the 'non-transformation of the inputs' is not a defect; on the contrary, it is indicative of the rigour of Marx's method. By abstracting from changes in the value of the inputs and the money-commodity, Marx locates the source of profit in the performance of labour in production, and carefully builds the conditions in which circulation may be brought safely into the analysis and add positively to its development.

5.5 - CONCLUSION

This chapter has shown that Marx's presentation of the transformation of value into price of production has two distinct stages. In the first, differences in the the value of the means of production are abstracted from, to highlight the principle involved; that value is produced by labour alone. Because of this, the greater is the variable part of the advanced capital, the higher is the profit rate. The averaging out of these rates distributes surplus value according to the size of each capital, and this forms prices different from values.¹⁶ In the second stage, the economy is analysed at the level of prices; all commodities are sold at price, and the input prices are taken into account.

¹⁶ In the terms introduced in chapter 2, the transformation corresponds to a modification in the process of homogenization of labour, but it does not affect the normalization or synchronization.

Therefore, the transformation leads to a greater determination in the form of social labour, and explains the distribution of labour and surplus value across the economy (Himmelweit and Mohun, 1981, rightly argue that the issue is one of distribution, as opposed to redistribution; see also Goode, 1973, D. Harvey, 1982, p.68, and Salama, 1975, 1984).

The use of the organic composition of capital is essential to distinguish these stages, because it allows the identification of the cause of the transformation, and the description of the process that gives rise to prices distinct from values. In addition, it shows that Marx's interest lies in the conceptual relationship between labour, price and profit, and not the algebraic calculation of prices or the rate of profit; moreover, it indicates that equilibrium assumptions are unwarranted in the study of the transformation.¹⁷ It follows that, even though workers are exploited as they produce specific commodities, the capitalist class as a whole (and not individual capitalists) is the agent of exploitation, and the results are evenly divided among its members. This reading of the transformation shows that the presentation in *Capital 3* is consistent with Marx's method, and part of his reconstruction in thought of the main categories of the capitalist economy (see Kliman and McGlone, 1988, p.62, Murray, 1988, p.262n23, Postone, 1993, pp.133-34 and Smith, 1993a, p.41).

In contrast, the use of the value composition of capital in the transformation would tend to conflate these stages into one, in which case the process would collapse. It would appear as the external relation between two contrasting exchange value systems in equilibrium, one in which the

¹⁷ This point is aptly discussed by Baumol (1974, 1992). If Marx was interested in the calculation of an equilibrium price system values would be unnecessary, given the technologies of production and demand (see chapter 2, Fine, 1983, p.520, and Dumenil, 1983-84, pp.428, 434).

exchange ratios are determined by the labour time socially necessary to produce the commodities, and another where an equal (price-) rate of profit prevails (see Fine, 1980, Gerstein, 1976, Kliman and McGlone, 1988, and Moseley, 1993b). Because of the arbitrary separation of value from its form of appearance, this approach tends to give rise to irrational relations between the value produced and its expression as price, and/or between surplus value and its form of appearance as profit (see chapter 6, Lee, 1993, p.470, and Shamsavari, 1987).

The vast majority of the literature has investigated the transformation through the VCC. Whilst this is not in itself wrong, and may lead to important theoretical developments, this approach has no immediate implications with respect to Marx's transformation problem. The different solutions to which this approach has led can be distinguished from each other by the (necessarily partial) processes that they contemplate, the relations that are put to the forefront, and the treatment which is given to them (in other words, the nature and form of the normalization condition adopted, the use of interactions or simultaneous equations, etc; see Desai, 1989, Fine, 1986b, and Mattick, Jr., 1991-92). Because of this, most transformation procedures found in the literature are alternative to Marx's; they cannot legitimately claim to 'correct' errors in the latter, because they address different issues and have a conception of the relations between values and prices that is distinct from Marx's.

In particular, lack of understanding of Marx's transformation has led to the unjustified complaint that he unwarrantedly omitted the specification of the technologies of production (as in Desai, 1992) or, more often, that he did not transform the value of the inputs (see, for example, Bortkiewicz, 1949 [1907], p.201 or 1952 [1906-07], p.9, Dobb, 1967, pp.532-33, Dumenil, 1980, pp.8, 22-23, 51, Foley, 1982, p.44, Lipietz, 1982, p.64, Sweezy, 1949, p.xxiv

and 1968 [1942], p.115, and de Vroey, 1982, p.47). Hopefully, this chapter has demonstrated that these objections are misplaced, because they emphasize issues that are not the primary object of Marx's concern in the transformation, and tend to obscure, rather than reveal, the nature of his inquiry.

6 - THE 'NEW APPROACH' TO THE TRANSFORMATION PROBLEM AND
THE CHANGING FACE OF THE LABOUR THEORY OF VALUE

The century-old debate which surrounds Marx's transformation of values into prices of production has, over the last few years, shifted its focus. Until the mid-1970s, the most important issue in the discussion was the circumstances in which the equalities between total value and total price, and total surplus value and total profit, hold. Marx attributed great importance to them, and they quickly became the conditions which any credible solution to the transformation problem must satisfy or, at least, convincingly explain away. However, today the debate is no longer primarily concerned with this issue. Several approaches to the transformation now exist in which these two equalities hold simultaneously.¹ The theoretical challenge now concerns the apparent abundance of 'Marxian solutions' to the transformation problem. This diversity indicates that two closely connected and fundamental questions remain open within Marxian economics.

The first is the nature of value, its quantitative determination, and its relation to price. The relevance of this issue to the transformation problem is palpable, and it may be argued that each approach to the transformation is grounded upon a distinct perception of this highly complex problem. The second question is closely related with the first. It concerns the method of investigation that should be used to answer questions like the former. Both issues have been extensively investigated in the last decades, and considerable advances have been made. In the last few years they have been the subject of renewed interest; much

¹ A non-exhaustive list should include Carchedi (1984, 1991), Dumenil (1980), Foley (1982), Kliman and McGlone (1988), Lipietz (1982), Mattick, Jr. (1991-92), Wolff, Roberts and Callari (1982, 1984b), Ramos-Martinez and Rodriguez-Herrera (1994), Roberts (1987) and Yaffe (1974).

progress has been achieved, and a major step forward now seems possible. It is in this context that this chapter addresses the 'new approach' to the transformation problem, developed in the late 1970s by Gerard Dumenil and Duncan Foley. The issues which this chapter considers in most detail are the relation between the 'new approach' with previous (equilibrium) approaches and the impact of the 'new approach' on the future of the transformation debate. Therefore, the critique of the 'new approach' from the point of view of the analysis of the transformation in chapter 5 is not the main subject of attention; the issue here is, rather, the contribution of the 'new approach' for the on-going debates on value theory. In other words, this chapter scrutinizes the 'new approach' searching for its positive contribution, and the means to develop it further.

This chapter has eight sections. The first outlines the early phase of the debates around the transformation problem. It broadly follows the development of Bortkiewicz's critique of Marx and the genesis of what became known as the Sraffian approach. The second presents the basic elements of the 'new approach' and shows why it marks a qualitative shift in the debate. This shift is due to the recognition that the transformation is not a problem in the Sraffian sense (in which the main issue is the (im)possibility of obtaining the aggregate equalities between value and price of production and surplus value and profit), and that equilibrium assumptions are unnecessary. The most important limitation of this approach is also pointed out, namely that it does not emphasize that the main issue in the transformation is not the quantitative relationship between autonomous variables, but the qualitative relationship between certain categories and their own forms of appearance.

The third section considers the issues of competition and price-formation in capitalism. This section shows why the price equation used in general equilibrium representations

of Marx's theory of value is inappropriate. The fourth investigates the value equation. It is argued that the conception of value which underlies general equilibrium models is an inadequate representation of this concept; the reasons for this failure are associated with the restricted framework in which equilibrium approaches operate. The third and fourth sections argue that the 'new approach' has a better understanding of the categories of price and value than the traditional; in addition, they discuss the reasons why general equilibrium representations of Marx's theory of value are inapposite. It is concluded that their inability to obtain Marx's aggregate equalities is essentially due to the misrepresentation of the concepts and the distortion of the structure of his value theory that is intrinsic to equilibrium analyses.

Sections five, six and seven evaluate the innovations specific to the 'new approach', namely the emphasis on the net product and the definitions of value of money and value of labour power. In these sections it is shown that, in the context in which the 'new approach' operates, the emphasis on the gross product leads to double counting. The 'new' definitions of value of money and value of labour power, however, are open to criticism at another level. This is because they derive from a circulation-based approach to capitalism, that fails to highlight some of its most important characteristics and limits the scope for the further development of the analysis. Section eight summarizes the results of this chapter. This investigation shows that the 'new approach' has brought a qualitative shift to the transformation debate and, as a point of departure, has opened the way for a more developed understanding of the labour theory of value.

6.1 - AN OVERVIEW OF THE EARLY DEBATES

The relationship between values and prices of production may be seen in three different ways, and the extensive literature on the transformation problem can be organized accordingly.² The first, and by far most extensive, phase of the polemic was essentially critical of Marx's approach. It was opened by Bohm-Bawerk (1949 [1896]), who attacked Marx for his 'failure' to articulate the value system developed in *Capital* 1 with the price system introduced in *Capital* 3. Inspired by Tugan-Baranowsky (1905), Bortkiewicz (1949 [1907], 1952 [1906-07]) was also heavily critical of Marx's procedure and, perhaps most notoriously, of his non-transformation of input values. Two of Bortkiewicz's conclusions have become particularly important in the light of future developments: the irrelevance of luxury goods to the determination of the rate of profit, and the general untenability of Marx's two aggregate equalities.

One of the most important aspects of Bortkiewicz's approach is that his judgement of Marx's theory of value relied heavily on its (in)ability to deliver the two aggregate equalities. Therefore, instead of being treated as part of Marx's theory, they were posited as external criteria against which it should be tested. This line of thought was developed by Winternitz (1948), May (1948), Seton (1957) and others (several economists committed to Marxism also flirted with this argument; see, for example, Dobb, 1967, Meek, 1956b, and Sweezy, 1968 [1942]). As it developed, Bortkiewicz's approach acquired a striking resemblance with

² The opening shots of the discussion were fired in response to Engels' provocative preface to *Capital* 2, but they are not of interest here (see Howard and King, 1987, or 1989, chapter 2). There is no need nor space for a thorough survey of the vast literature on the transformation problem in these pages. See, however, Desai (1989, 1992), Dostaler and Lagueux (1985), Fine (1980, 1986a), Fine and Harris (1976, 1977, 1979), Laibman (1973), Lee (1990), Mandel and Freeman (1984), Mohun (1991), Rosdolsky (1977 [1968]), Steedman (1981a), Sweezy (1968 [1942], 1949) and Yaffe (1974).

Leontief's input-output models. The publication of Sraffa's (1960) book provided this stream of literature with seemingly solid foundations, and previous work was re-elaborated by Morishima (1973) and Steedman (1977), among others. The latter, in particular, articulated previous themes into what became known as the Sraffian critique of Marx. The Sraffians dropped the Ricardian flavour of Bortkiewicz's conclusions, and alleged that the correction of the faults in Marx's transformation would render his value theory redundant; for them, it should be discarded as irrelevant for economic analysis.³

This result stems from the representation of Marx's theory of value which the Sraffians themselves popularized. Its basic features are a value system derived from the technologies of production and a price system that incorporates variables of distribution such as the wage and profit rates (the wage rate is defined as the price of a fixed bundle of goods, while the value of labour power is the value of this bundle). Both systems are constructed under the assumption of general equilibrium. This was accepted by most analysts (if only implicitly) as an adequate framework for the transformation, and it suggests that the validity of Marx's theory hinges on the possibility of obtaining the two equalities and connecting the two systems in a logically meaningful way. It was not difficult for the Sraffians to show that this is generally impossible. Those who attempted to salvage the labour theory of value from within this model could at most provide some (generally unconvincing) explanation for the failure of the two

³ See chapter 2. These are the same conclusions drawn by Haberler (1966), Lerner (1972) and Samuelson (1957, 1971, 1973, 1974). The latter openly states that '[m]y vantage point in the discussion was *not* neoclassical. It was Sraffian! ... What I said is exactly what Joan Robinson, no neoclassicist, has been saying all along' (Samuelson, 1973, p.64; see also Bronfenbrenner, 1973 and Robinson, 1966, 1973).

equalities to hold simultaneously (see, for example, Gerstein, 1976; his approach is criticized by Fine, 1986b).

It quickly became clear to many that the Sraffian attack was based on a serious misrepresentation of the concepts and the method appropriate to the labour theory of value. However, confrontation along these lines gradually led to the impossibility of meaningful dialogue across the divide and, subsequently, to the bitter collapse of the discussion.⁴ For the 'pessimists', this debate showed no more than the impossibility of 'validating' Marx's theory of value in such inauspicious circumstances. For the 'optimists', it opened new theoretical grounds.

6.2 - THE CONTEXT OF THE 'NEW APPROACH'

The discussion around the transformation problem simmered for a few years, in which a succession of studies gave generality and more consistency to the labour theory of value (see, for example, Elson, 1979a, Mandel and Freeman, 1984, and Schwartz, 1977a). The development of one of these research programmes led, in the late 1970s, to the elaboration of the 'new approach' to the transformation problem. This innovative approach not only to the transformation problem but to value theory as a whole was developed by Gerard Dumenil (1980, 1983-84, 1984), Duncan Foley (1982, 1983, 1986) and Alain Lipietz (1982, 1983, 1984; see also Lipietz, 1979a). Their interpretation of value theory owes much to Rubin (1975 [1928], 1978 [1927]), and subsequent work draws heavily upon Aglietta (1979 [1976]).

⁴ This can be followed through the *Bulletin of the Conference of Socialist Economists*. See also Baumol (1974, 1992), Fine and Harris (1979) and Steedman (1977, 1981a).

However, by the time the 'new approach' was developed, interest on the fundamental problems of the labour theory of value had already dwindled. This was probably due to the previous history of the debate and to the growing maturity of a generation of intellectual and political activists, whose interests gradually shifted away from such matters. In addition, concern over value theory had become unfashionable in the light of broader developments in the political and economic arena. This may help us to understand why the 'new approach' had a much cooler and more limited reception than earlier solutions, even though some of these were less theoretically challenging. The lack of appeal of the 'new solution' may also be due to the mathematical complexity of some of its presentations, and to the fact that procedures that lend support to Marx's conclusions are not interesting to some.

The distinctive conception of value theory in the 'new approach' surfaces most clearly through three differences between this and previous solutions to the transformation problem; first, the emphasis on the net, and not the gross, product; second, the distinctive conception of the value of money and, third, the changed definition of the value of labour power. When looked at under the light of these innovations, the transformation problem becomes trivial and, in effect, vanishes. Let us see why.⁵

Suppose that we know the hourly wage rate w ,⁶ the $(1 \times n)$ price vector p , the $(n \times 1)$ gross output vector x , the $(1 \times n)$ labour inputs vector l and the $(n \times n)$ technical matrix A of

⁵ It is assumed that all labours are productive, that the production period is uniform and that wages and profits are the only forms of income.

⁶ The wage rate is paid per unit of simple, unskilled labour power. Two simplifying assumptions are involved; that the workers are identical to one another, and that they produce equal quantities of value per hour of labour power sold. These assumptions are discussed in chapter 2; see also Lipietz (1982).

an economy.⁷ They are not necessarily a reflex of equilibrium conditions nor the prevalence of a unique rate of profit across all sectors.

Let λ^m be the *value of money* (measured in hours of labour per pound sterling). This variable is defined as the ratio between the total labour performed in the economy and the price of the net product $p(I - A)x$, or py . The value of money indicates the quantity of labour represented by the unit of money, or the labour time necessary to add one pound sterling to the value of the product (see Aglietta, 1979 [1976], pp.41-44, and Foley, 1982).

In order to grasp the implications of the concept of value of money and the main features of the 'new approach', let us return to the 'flax and linen' example in chapter 2.⁸ Let us presume a very simple economy, where the gross product is one unit of flax (F) and one unit of linen (L) per period. Flax is produced by four hours of simple labour (l), and linen by two hours of labour and one unit of flax; therefore, all flax is consumed as an input in the production of linen, and the unit of linen is the net product of the economy. This can be represented as:

$4l \rightarrow 1F$

$2l + 1F \rightarrow 1L$

It must be stressed that the flax produced in the current year will be used as an input to the production of linen in the next year; in other words, the flax is not consumed in the same period when it is produced. It is immediately

⁷ Matrix A is assumed indecomposable and productive in Hawkins-Simon terms; there are no joint products and no fixed capital. For a more general analysis, see Dumenil and Levy (1984, 1987, 1989, 1991), Ehrbar (1989) and Lipietz (1979b).

⁸ This is a development of the 'flax and linen' example in Glick and Ehrbar (1987).

evident that the total labour performed in this economy in the current period is 6l and, as mentioned above, the gross product is one unit of flax and one unit of linen, and the net product is one unit of linen. If the linen is sold at £6, it follows that the value of money is:

$$\lambda^m = 6l/£6 = 1l/£$$

In more general terms, the value of money is:

$$\lambda^m = \frac{l x}{p(I - A)x}$$

The reader should beware of the fact that the value of money is conceptually distinct from the value of the money-commodity. In particular, it does not follow from the definition of value of money that commodity prices are necessarily proportional to the labour time socially necessary to produce them (see below and section 6).

The conception of value in the 'new approach' departs from the fact that the total labour performed in the period (lx) is equal to the newly created value (λy , where λ is the ($1 \times n$) vector of commodity values, given by $\lambda = l(I - A)^{-1}$).⁹ From this and the definition of the value of money a highly important conclusion follows: the price of the net product is identical to the total value produced divided by the value of money (if m is the inverse of the value of money, or the money-value added to commodities in one hour of labour, then $py = m\lambda y$).¹⁰ According to the 'new approach',

⁹ If $\lambda = l(I - A)^{-1}$, then $\lambda y = l(I - A)^{-1}(I - A)x = lx$.

¹⁰ In this chapter, 'labour-value' is the quantity of labour socially necessary to produce a commodity. 'Money-value' is the ratio between the labour-value of a commodity and the labour-value of the money-commodity, and 'price' is the sum of money for which a commodity may be exchanged on the market. This terminology conforms with that adopted by the proponents of the 'new approach' and avoids the possibility of confusion.

this expresses the content of Marx's equality between total value and total price.¹¹ The underlying conception is that the labour performed in the period creates the gross product of the economy but only the value of the net product. The newly produced money-value is allocated to the commodities in the net product as their price. Hence, whatever the rules of price-formation, Marx's first equality must always hold (the rationale for the use of the net, and not gross product in this equality is discussed in section 5).

Let us now proceed to the second equality, between total surplus value and total profit. The value of labour power, V , is defined as the share of the net product that is appropriated by the workers, and the surplus value as the share of the capitalists (thus, $S = 1 - V$).¹² The value of labour power is the product of the value of money by the wage rate. If W is the total wage bill, we have:

$$w = \frac{wl_x}{l_x} = \frac{W}{\lambda_y} = \frac{W}{\lambda_{m_{py}}} \Rightarrow$$

¹¹ 'The advantage of interpreting the value of money as the ratio of aggregate labor time to aggregate money value added is that the sum of the value gained and lost by all producers in exchange will be zero. In other words, this interpretation of the value of money corresponds to the idea that value is created in production but conserved in exchange' (Foley, 1982, p.41). The importance of the value of money in this context can be clearly grasped if one imagines that a country changes its currency from pounds sterling, say, to ECU. In this case the sum of prices will be modified, even though the quantity of labour performed and the total value produced remain the same. The modified value of money is a reflex of the change of the currency, and shows that one hour of labour now adds a different quantity of money-value to the newly produced commodities.

¹² 'If we assume that one hour of labour power sold yields one hour of labour time in production, the value of labour power will be a fraction between 0 and 1 and expresses the fraction of expended labour time the workers work "for themselves," or the fraction of labour expended which is "paid labour." The value of labour power is also, under the assumption that an hour of labour power yields an hour of labour time, equal to the wage share of value added.' (Foley, 1982, p.40; see also Dumenil, 1980, pp.74-75).

$$w\lambda^m = \frac{W}{py} \equiv V$$

In the example above, $lx = \lambda y = 6l$, $py = £6$ and $\lambda^m = 1l/£$. If we suppose that $w = £0.5/l$, then $V = 0.5$ and $S = 0.5$.

The newly created value is distributed to capitalists and workers as wages and profits. Hence, whatever the rules of distribution and price formation the social revenue is equal to the money-value (and price) of the net product:

$$W + \Pi = py \Rightarrow$$

$$\frac{W}{py} + \frac{\Pi}{py} = 1$$

It follows that:

$$\frac{W}{py} + \frac{\Pi}{py} = V + S$$

as $W/py \equiv V$,

$$\frac{\Pi}{py} = S \Rightarrow \Pi = mS\lambda y$$

In the example, we know that $W = 6 \times £0.5 = £3$ and $py = £6$; thus, $\Pi = £3$. This is equal to the share of the money-value created per hour of labour seized by the capitalists, times the mass of new value produced. It immediately follows that the shares of workers and capitalists in the net product are the same, whether they are measured in labour hours or money (see Aglietta, 1979 [1976], pp.48-49 and Dumenil, 1980, pp.76, 124). Thus, the rate of surplus value, or of exploitation, is:

$$e = \frac{S}{V} = \frac{\Pi}{W}$$

This ratio is determined when commodities are priced and wages are paid. It is unaffected by the use of wage revenues, which may include the consumption of necessities or luxuries, saving or hoarding (in our case, $e = S/V = 0.5/0.5 = \Pi/W = 3/3 = 1$, or 100%).

The 'new approach' sees this as a proof that profit is merely redistributed surplus value. The (trivial) manner in which Marx's two aggregate equalities are obtained has led Dumenil and Levy (1991, p.362) to claim that '[r]ather than a "solution" [to the transformation problem], it is more adequate to refer here to an *interpretation*, since there is basically nothing to prove from the formal point of view.'¹³

Some writers have objected that the simplicity and generality of this solution is the result of the changed definition of some key variables. Because of this, they argue that the 'new approach' fails to produce any new insights and reduces the real problems in the transformation into a tautology (see, for example, Bellofiore, 1989). However, this is not the whole story. As will be seen in sections 5 to 7 below, this critique of the 'new approach' is based on a partial reading of Dumenil and Foley's work, which ignores the important contribution that their approach can offer to a non-equilibrium interpretation of Marx's theory of value and, in particular to the transformation debate.

Whilst in the previous phase of this debate the main issue was the determination of the circumstances in which total prices are equal to total values and total profits are equal

¹³ In other words, '[a]s far as the new interpretation of the transformation problem is concerned, the required conditions are the existence of a positive set of prices regardless of the rates of profit, guaranteeing not necessarily uniform positive wages, and a positive aggregate price of the net output. If such conditions are fulfilled, the idea of a "transformation problem" becomes self-contradictory.' (Dumenil, 1984, p.347; emphasis omitted)

to total surplus value, this is no longer in question. In the 'new approach', the two equalities always hold, and this is an advance, given the previous state of the literature. In fact, the diffusion of this new perspective has led the polemic on to a new terrain, in which the transformation problem does not posit a major difficulty for Marx's theory of value, and where the development of this theory may be freed from equilibrium assumptions.¹⁴ In what follows, it is argued that this is a significant advance in the understanding of the relations between values and prices. Nevertheless, the 'new approach' does not go far enough. The real issue is not why and how the emphasis on the net product, the determination of the value of money, and a modified definition of the value of labour power confirm Marx's claims. The point which must be emphasized is, rather, that prices are nothing but forms of expression of values, and that profit is nothing but the form of expression of surplus value. It is in this qualitative, rather than quantitative sense that the two equalities should be understood.

This conception of the transformation (developed in more detail in chapter 5) implies that inquiries into the circumstances in which the two equalities hold simultaneously may be logically flawed, because they do not refer to autonomous entities but to the conceptual relation between certain variables and their forms of appearance. These equalities are open to mathematical analysis only in a very restricted sense, because mathematics is hardly able to capture the distinct levels of abstraction to which value and price of production (and surplus value and profit) belong. The failure of many attempted investigations of the

¹⁴ Regardless of the apparent similarity, the denial of the existence of a transformation problem implicit in the 'new approach' has little in common with Steedman's (1977, pp.14-15) argument that '[o]n the basis of certain common, reasonable assumptions it may be shown that ... the "transformation problem" is a pseudo-problem, a chimera' (see below).

transformation to recognize this has frequently led to the conflation of these levels with one another (see below).

The main contribution of the 'new approach' is, therefore, to shift the debate from the issue of 'equality' to that of 'identity'. But a further step is still needed. The discussion now has to move from 'identity' to 'form of appearance'. If this is to happen, and a third (and hopefully final) phase of the transformation debate is to prevail, the contribution of the 'new approach' has to be carefully evaluated.

6.3 - GENERAL EQUILIBRIUM, COMPETITION AND PRICES

The assumption of general equilibrium or simple reproduction is an important feature of most solutions to the transformation problem, especially the Sraffian. If general equilibrium is presumed, the economy can be represented by a price equation such as $p = (pA + w l)(1 + r)$. This equation has been considered a useful depiction of the concept of price of production because of the uniform rate of profit r , which allegedly expresses the results of competition. In addition, it ensures that input prices are identical to output prices, in which case Marx's alleged error of not having transformed input values is avoided. Let us see how legitimate are these arguments for the use of general equilibrium assumptions in analyses of the transformation problem, starting with the uniform rate of profit.

Everyone knows that profit rates are not identical across the economy. The issue is whether, given our interests, the presumption that they are helps us understand some essential features of capitalism, or whether it makes it harder to grasp them. Marx, for example, identifies two qualitatively distinct kinds of competition in his work, between capitals of the same branch and between capitals of different

branches.¹⁵ Competition between capitals of the same branch is analysed in detail in *Capital 1*, where it is shown that this is a powerful force behind the over-exploitation of the workers and the introduction of technical innovations in production (see chapter 2, Cleaver, 1990, and Lebowitz, 1992). Faster and more demanding production lines, new methods of production and more advanced machines may reduce the individual value of a commodity relative to its social value and, thereby, grant exceptionally high profits to some producers. These profits are skimmed from their relatively backward competitors, whose unit costs are higher. Therefore, competition between capitals in the same branch leads to the *divergence* of individual profit rates.

In the first two parts of *Capital 3* Marx shifts his attention to competition between capitals in different branches. This kind of competition operates through the (threat of) migration of individual capitals towards sectors in which the profit rates are higher. Because of this, commodities are not sold at prices proportional to their labour-value (otherwise sectors with a lower than average organic composition of capital would have exceptionally high profit rates). On the contrary, commodities are sold at prices of production formed on the basis of an equal profit rate across all sectors of the economy. Therefore,

¹⁵ 'What competition within the same sphere of production brings about, is the determination of the value of the commodity in a given sphere by the average labour-time required in it, i.e., the creation of the market-value. What competition between the different spheres of production brings about is the creation of the same general rate of profit in the different spheres through the levelling out of the different market-values into ... [prices of production] that are different from the actual market-values. Competition in this second instance by no means tends to assimilate the prices of the commodities to their values, but on the contrary, to reduce their values to [prices of production] that differ from these values' (TSV2, p.208, emphasis omitted; see also pp.206-07, and Burkett, 1986, 1991; for a different opinion, see Heinrich, 1989).

competition between capitals of different branches leads to the equalization of profit rates across the economy.

Marx's theory of value is a dialectical theory, that recognizes that the contradictory forces put in motion by these two kinds of competition have distinct levels of complexity. Therefore, they cannot be added to give either a uniform rate of profit across the economy (in which case competition within sectors is obliterated) or an ever-growing disparity of profit rates (which would lead to the unrelenting monopolization of all sectors of the economy). The most important aspect of this analysis is that it captures the complex, conflicting and dynamic tendencies beneath capitalist competition.

In contrast, the assumption that prices are formed on the basis of the uniform rate of profit eliminates technical progress from the picture and, with it, the possibility of conceptualising these real contradictions. In exchange for the ability to understand the complex processes behind competition and technical change (which are one of the most important advantages of Marx's approach over mainstream economic theory), general equilibrium analysis offers a price system that can, in certain (restrictive) circumstances, deliver a determinate price vector; because it is for equilibrium, this vector brings with it the sought for identity between input and output prices. This bargain has been considered acceptable by many, who felt that an adequate solution to the transformation had to be probed against the (external) criterion of the two aggregate equalities. As this involved the need to determine the sum of prices and the sum of profits, a price equation such as $p = (pA + w\mathbf{l})(1+r)$ was considered a necessity. In an attempt to legitimise the restrictive conditions of general equilibrium, they were identified with the state of simple reproduction, which Marx analyses extensively in the first two volumes of *Capital* (see Desai, 1992, for a particularly clear argument for this procedure).

More generally, the equation $p = (pA + w^l)(1+r)$ was introduced into the analysis of the transformation by writers who conflated the issues that concerned Marx with those that interested Sraffa (1960): the investigation of the effects of changes in distribution on prices. Because of the nature of his concerns, Sraffa uses a price equation tailored to impose equilibrium and preclude technical change.¹⁶ Moreover, he feels no need to consider how technologies are determined and why they change, to peer into the origin of the surplus, or to analyse the inner nature of class conflicts in capitalist society. However, these limitations make production in Sraffa's system resemble a purely technical process, while capital can hardly be defined except as a collection of use values. As a result, the social aspect of production is either assumed away or projected upon the sphere of immediate interest, distribution (this argument is developed in some of the best-known Marxian critiques of Sraffianism, for example, Fine and Harris, 1979, Rowthorn, 1974, and Shaikh, 1982, 1984; see also Farjoun, 1984).

This analytical context is clearly distinct from Marx's, where the social and historical aspects of capitalist production are heavily emphasized. For example, in *Capital 1* he shows that, despite the fact that technologies are conditions for value creation, they are themselves determined through the law of value (see Carchedi, 1984, 1991). This conclusion cannot be justified on the basis of general equilibrium models and, particularly, of Sraffa-based ones (see Fine, 1982). Marx also discusses class struggle in production extensively, but his analysis of distributional struggle is much less developed, in

¹⁶ Sraffa (1960, p.3) defines prices as 'a unique set of exchange-values which if adopted by the market restores the original distribution of the products and makes it possible for the process to be repeated; such values spring directly from the methods of production.' (see Harcourt, 1972, and Nell, 1967)

contrast with Sraffa's. This is not because Marx considered it unimportant, but because it is more complex and concrete; it would have been considered later, had he been able to fulfill his plans.¹⁷

Therefore, the use of a price equation derived from Sraffa in the analysis of the transformation is misleading for several reasons (of course, this does not mean that this equation should be rejected in general). First, Marx does not discuss the transformation in the context of equilibrium or simple reproduction, and his own problem does not depend upon the equality between input and output prices. The imposed identity between them is therefore unnecessary and unwarranted, for it eliminates one of the main sources of dynamics in capitalism, competition inside branches. Second, the technical conditions of production are irrelevant to Marx's analysis of the transformation, other than the distinct organic compositions of the capitals involved. In contrast, the use of Sraffa's price equation requires knowledge of the technologies of production. Third, the main subject of Marx's transformation is not the calculation of values or prices, as is the case in equilibrium approaches; on the contrary, Marx's intention is to show that profit is merely a form of surplus value, and that price is a form of value (see chapter 5).

In addition, the equilibrium assumption has implications of another order: in equilibrium, the qualitative relations of determination between the variables are lost (see Freeman, 1984). Systems of equations such as the Sraffian do not have a clear internal structure, and they can hardly reflect the

¹⁷ See Lebowitz (1992), Campbell (1993) and Naples (1989). For Marx, the essence of contemporary social relations lies not in struggles for consumption goods but in capitalist control of production and, because of that, of workers' lives: 'Forced labour rather than low wages, alienation of labour rather than alienation of the product of labour are, according to Marx, the essence of capitalist exploitation' (Medio, 1977, p.384).

distinct levels of abstraction which Marx's theory of value uses to reconstruct the relationship between essence and appearance (see Murray, 1988, 1993, and Smith, 1990, 1993a, 1993b). Hence, general equilibrium approaches can hardly conceive the transformation except as the attempted construction of a mathematical correlation between otherwise autonomous price and value systems. As a result, the connection ('transformation') between them is bound to be arbitrary.¹⁸

This is a result of the misleading opposition between the value system and the price system in which it is 'transformed' (see Kliman and McGlone, 1988). The price system has two degrees of freedom (because it has n equations, one for each commodity, but $n+2$ unknowns, the n prices and the wage and profit rates). Therefore, while the value system can usually be solved (provided that the matrix A is well-behaved), the price equation can only be solved if other assumptions are introduced, such as the identity of the value of labour power with the value of a fixed bundle of goods (while the wage is the price of this bundle), plus some normalization condition such as one of Marx's aggregate equalities. However, the solution of this system generally shows that the other aggregate equality is not also possible.

¹⁸ 'Rather than justifying the concept of value on the basis of the results to which it *leads* in price or distribution theory, Marx wished to demonstrate that value is a concept that has itself to be explained in terms of its correspondence to relations that exist in the real world. The relevant questions are what is value and why does it exist, for in contrast to prices, for example, values are not a simple observational fact of everyday life. Goods in a shop window have their prices displayed to the world, the same cannot and could not be true for their value. Consequently, there is a certain methodological inconsistency when prices and values are introduced simultaneously at the outset into an analysis of the relationship between them. For the two concepts have a different status, one requires justification for its existence, the other does not.' (Fine, 1980, p.123; see also p.125, and Kliman and McGlone, 1988).

There is surely one major difficulty with this result, and it lies in the model and not Marx's theory of value. For Marx was adamant that these equalities are not independent conditions, but one and the same; the reason why total prices equal total values is that total profit equals total surplus value. Unfortunately, many analysts disregarded the built-in inability of general equilibrium models to represent adequately the concepts which they want to investigate, and ignored the problems of trying to represent the complex internal structure of Marx's theory of value in this context. Because of this Marx's theory, and not the equilibrium models which improperly represented it, was blamed for the inconsistent results obtained.

The anomalous results reached by equilibrium analyses are discussed in a vast literature. Because of their misleading representation of Marx's theory of value and, particularly, the conflation of Marx's transformation problem with Sraffa's, several elements of Marx's method and some of his most important conclusions have been deemed to be wrong. This is the case with his 'error' of not having transformed input values, the attribution of 'undue importance' to the value rate of profit as opposed to the price rate, the 'unwarranted' stature of values in the analysis of capitalism, and so on (see Steedman, 1977). In addition, most of the literature has been blind to Marx's clear indications that the transformation is caused by the differing organic, and not value, compositions of capitals in different sectors.¹⁹ To sum up, neither Sraffa's concerns

¹⁹ See chapters 4 and 5. Most of the literature conflates the organic and value compositions of capital when discussing the transformation problem, and speaks of the former while working with the latter. However, there are telling exceptions. For example, Steedman (1977, p.37) says that 'In [*Capital*] Volume III Marx turned to the ... question of how the profit rate and production prices are determined when the *value composition of capital* differs between industries and consequently commodities do not exchange at value' (emphasis added). Glick and Ehrbar (1987, p.296), in their

nor his method can be easily made compatible with Marx's, either in general or in the transformation. More specifically, the above discussion has shown that $p = (pA + wl)(1+r)$ does not represent either Marx's perception of price formation nor his concerns in the analysis of the transformation. The 'new approach' rightly sets these difficulties aside, and obtains the two 'identities' with no need to presume general equilibrium (the formulations in Lipietz, 1982, 1983 are more limited). This is one of its greatest merits, and it is against this background that the alternative perspective of the 'new approach' should be evaluated.

6.4 - VALUE AND GENERAL EQUILIBRIUM

The standard representation of commodity values, through the equation $\lambda = l(I - A)^{-1}$, is closely related with the assumption of general equilibrium. This is not because it is valid only under these restrictive circumstances but, rather more seriously, because it does not represent values adequately, although in equilibrium it seems to do this.

The value of a commodity is the sum of the value of its inputs with the living (abstract) labour necessary to transform them into the final good (see chapter 2). If the above equation is to represent the vector of values, the technical matrix A must reflect the socially average techniques of production, and l has to be a vector of abstract labour. The determination of the social technologies of production requires the classification of all commodities according to use value; this will determine the various sectors into which the economy is divided and

careful argument for the 'new approach', also claim that the problem is due to distinct VCCs of capitals in different branches. This issue was first raised by Fine (1983); see also Fine (1989, 1990a), Fine and Harris (1979), Saad Filho (1993b) and Weeks (1981).

lead to the normalization of the labours applied. According to Marx, the determination of the value of each kind of commodity involves the averaging out of the distinct technologies of production adopted in individual firms. This is what determines the matrix A and the labour time socially necessary to transform a (socially given) mass of inputs into a determinate output, that should be represented by the vector l .

However, the labour time represented by l is not the abstract labour applied in production, nor the quantum of value added; it is merely the labour time 'technically' (physiologically) necessary in production. The difference between 'technical' or physiological labour and abstract labour is the following: physiological labour expresses the formless expenditure of human energy necessary to transform given inputs into a predetermined output. Because it is a merely quantitative measure it ignores, among other things, the differences in skill which make workers employed in distinct sectors produce diverse quantities of value per hour of labour (see chapter 2).

Therefore, while the matrix A can be arguably inferred from the input-output tables of the economy, the vector of abstract labour is not given by the number of hours of labour 'technically' necessary to transform the elements of A into the gross output x . The process which relates 'technically' necessary labour with abstract labour is the confrontation of the distinct kinds of commodities with each other in the market, through their equalization with money as measure of value (see chapter 3).

Because values are determined only through the relation between commodities with each other by means of money, they can only become known through prices. However, this does not imply that prices actually determine values (in the logical sense), nor that values and prices are independently determined by technology. Rather, this seemingly paradoxical

result is due to the fact that the logic of value is one of essence and not of appearance. It only appears through the ideal equalization between commodities and money and in the form of price.²⁰

General equilibrium formulations of Marx's theory of value conflate the labour time 'technically' necessary to produce each kind of commodity with its value. This is due to the assumption that all workers are identical with one another, an assumption which systems such as these usually (if only implicitly) require, together with the equality between supply and demand, which obviously they must presume. In this case the l_i become equal to $-$ although they are not conceptually the same as $-$ the abstract labour directly necessary to produce each commodity. The reasons behind the difficulty of general equilibrium approaches to capture the concept of value have been aptly summarized by Ganssmann (1983, p.301):

the simple determination of values (i.e., disregarding those dimensions of the value problem opened by the paired concepts of abstract and concrete, simple and complex labour) can govern prices only in a state of universal identity of private-individual and socially necessary labour. To assume such an identity ... destroys the object of inquiry, the capitalist economy, which cannot be understood without presupposing disequilibrium, or, more exactly, without presupposing a central nonidentity of private and social labour (see also Benetti, 1974 and Ganssmann, 1981)

²⁰ The essence must appear. However, it 'is constrained by its own inadequacy to appear; it must appear as something other than itself, because it harbors within itself an unreconciled contradiction between immediacy and reflection.' (Murray, 1988, p.159; see also Himmelweit and Mohun, 1981, Kay, 1979, Mohun, 1991, Moseley, 1993a, Pilling, 1980, and Smith 1990).

Difficulties such as this are avoided in the 'new approach', which shows that it captures the concept of value better than the Sraffian.²¹ Another merit of the 'new approach' is that it has not fallen victim to the illusion that the transformation problem concerns the calculation of the vector of prices of production, given a set of commodity values. This is obviously an impossible task in the equilibrium framework in which it is posited (for, as seen above, Sraffian values can be calculated from technology, whereas prices depend upon distribution variables as well; thus, prices cannot be a function of values; see Langston, 1984). However, this is a task that has tempted many a researcher.

6.5 - THE OPERATION ON THE NET PRODUCT

Dumenil (1980) and Foley (1982) pointed out that the traditional view, in which the aggregate equalities between value and price and surplus value and profit refer to the gross product, is inconsistent with the definition of value adopted in the 'new approach' because of double counting. They argue that the profit on the production of means of production, say, counts first as part of the social profit, and again as part of the cost of the means of consumption. The same holds with regard to the other components of the money-value of the means of production. Therefore, they must

²¹ The Sraffian conception of value has been proved inconsistent for other reasons as well: if the value of labour power is identified with the value of a bundle of consumption goods, as the Sraffians do, labour power becomes indistinguishable from other basic goods. In this case there is no reason why labour, and not another basic good, should create value (see Brody, 1974 [1969], Dmitriev, 1974 [1904], Vegara i Carrio, 1978, and Wolff, 1984). Dissenters within this approach have attempted to salvage the role of labour by making the system asymmetrical because of the non-commodity aspects of labour power (see Bowles and Gintis, 1981); for a critique, see Glick and Ehrbar (1986-87).

be subtracted, and only the net product and its value can be the subject of the transformation.²²

This is one of the most important innovations of the 'new approach'. The rationale for the operation on the net product is not straightforward. Let us start from the circuit of capital:

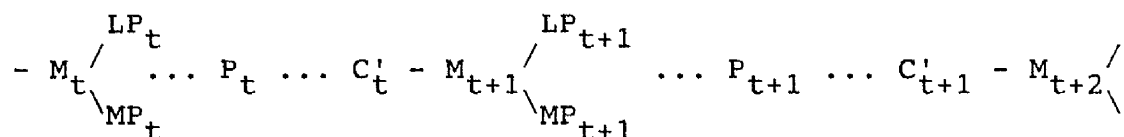


Figure 1: The Circuit of Capital

In each period (t , $t+1$, etc.) the capitalists buy labour power (LP) and means of production (MP). During production ($\dots P \dots$) the workers transform the means of production into new commodities (C'). The newly produced commodities have greater value than the capital originally advanced ($M_{t+2} > M_{t+1} > M_t$).

The gross output of each period, C' , is composed of means of production and means of consumption. The form in which they circulate establish links between the successive circuits of

²² 'What is redistributed in the economy is the value created during each period, i.e. the value of the net product of the period. In the aggregate, productive workers expend in a given period of time a certain amount of labour which defines the added value during the period. This value is embodied in the net product of the period. The redistribution of value (the separation between its appropriation and realisation) must be interpreted on this basis, and not on that of the gross product of the period which leads to double-countings for inputs produced and consumed productively during the period or inherited from previous periods.' (Dumenil and Levy, 1991, p.363; see also Dumenil, 1980, pp.26-30, 38, 55, 62-64, 79-82, 94-95; 1983-84, pp.441, 448-49 and 1984, pp.341-42, Dumenil and Levy, 1984, 1987, Ehrbar, 1989, Foley, 1982, pp.41, 45; 1986, p.22, Glick and Ehrbar, 1987, Lipietz, 1982, pp.63, 76-78; 1983, pp.34, 56-59, 85, and Mohun, 1993, p.14).

capital (the proceeds of sales are obviously used as new capital, but the circulation of commodities as use values is also relevant). Different interpretations of this process are partly to blame for divergent views of the transformation. This section discusses the production of means of production and the circulation of constant capital; the value of labour power and variable capital are considered below.

There are two distinct ways to conceptualize the net product. In terms of use value, it is that part of the gross output over and above that necessary to maintain the productive system, or to repeat the same pattern and level of production. Therefore, it comprises the means of consumption and net investment. In terms of value, as was shown above, it is equal to the newly applied labour. This raises the issue of what determines the value of the gross product, since the labour applied in a period creates all the gross product but only part of its value.

The part of the value of the gross output that is not produced in the period corresponds to the value of the means of production used up (which Marx calls *c*). There are different ways to conceptualize this value but, for the 'new approach', it is determined by the labour time socially necessary to reproduce the means of production, or to produce them with the present level of technology. In this case, the (possibly distinct) level of social technology when these commodities were originally produced is irrelevant (see chapter 2). This implies that the value of the gross output is the sum of the abstract labour newly performed in the economy with the present value of the (socially necessary) means of production used up. As the performance of labour upon previously produced MP not only creates the gross output and produces new value, but also determines the new value of the MP used up, it is indeed true that the value of the MP is counted twice in the value of the gross product. It counts first as the value of the

newly produced MP, and again as the new value of the MP used up. This point will become clearer if we return to the flax and linen example above. We have presumed that the technologies of production are:

$$4l \rightarrow 1F$$

$$2l + 1F \rightarrow 1L$$

Given these technologies, the labour time socially necessary to produce a unit of flax (its labour-value) is $\lambda_F = 4l$, and the labour-value of linen is $\lambda_L = 2l + [4l] = 6l$, where $[4l]$ is the labour time necessary to reproduce a unit of flax. Therefore, in general we have:

$$\begin{aligned}\lambda_F &= l_F \\ \lambda_L &= [\lambda_F] + l_L\end{aligned}$$

where $[\lambda_F]$ is the present labour-value of flax and l_F and l_L represent the (living) labour time necessary to produce a unit of flax or linen. The labour-value of the gross product, λ_x , is the sum of the labour-values of the flax and the linen produced in the period, λ_F and λ_L :

$$\lambda_x = 4 + 6 = 4 + [4] + 2 = 10l$$

In other words,

$$\lambda_x = \lambda_F + \lambda_L = \lambda_F + [\lambda_F] + l_L$$

This example shows that, given the definition of value adopted by the 'new approach', the labour expended in the production of the MP is counted twice in the value of the gross output; first in the value of the MP used up and, second, in the value of the final commodities produced with those MP.²³ For this reason, the 'new approach' argues that

²³ This becomes even clearer if the technology of production of flax is allowed to change. If, in a subsequent period, we

only the value of the net product should be the subject of the transformation, otherwise double counting is inevitable. This is because the value of the means of production used up does not correspond to labour actually performed either in this period or ever; on the contrary, it is merely a reflection of labour carried out and value created elsewhere.

The issue of double counting and the emphasis on the net product are important in the light of the on-going debates in value theory, because they show that the 'new approach' grasps (albeit in a distorted manner) the difference between living and virtual labour (discussed in chapter 2), and the need to conceptualize the transformation in abstraction from the value of the MP used up (as seen in chapter 5). In this light, the focus on the net product is tantamount to the emphasis upon the performance of living labour and the creation of value in production, in isolation from the transmission of value through the productive consumption of the elements of constant capital. This represents a significant step forward in comparison with previous analyses of the transformation.

6.6 - THE VALUE OF MONEY AND COMMODITY PRICES

If the value of the inputs is counted twice in the value of the gross output, it follows that the value of money should be defined on the basis of the net, and not gross, product. However, the concept of value of money must be used with care. It tells us how many hours of abstract labour are necessary to add £1 to the money-value of the output, but

have $2l \rightarrow 1F$ and $2l + 1F \rightarrow 1L$, the value of flax falls to $\lambda_F = 2l$. In this case the new value of linen is $\lambda_L = 2l + [2l] = 4l$. The labour-value of the gross product is now $6l$ - a reduction of four hours, twice as much as the fall in the value of flax. See, however, Giussani (1991-92) for a critique of this argument.

only at the aggregate level; a different quantity of money-value may be added by one hour of labour in any individual sector, for example because of skill differences between the workers.²⁴

Another limitation of this concept is that the value of money is merely an *ex post* reflex of the relation between labour performed and money-value added in the period. Therefore, it becomes known only *after* commodities are produced and priced and the socially average level of technology is determined. In this respect, it has a different scope than the Marxian concept of value of the money-commodity, that is determined prior to circulation and is related with the function of measure of value, instead of means of circulation as the 'new' concept of value of money (see Arnon, 1984, and de Brunhoff, 1976 [1966]). Despite this, the notion of the value of money is legitimate regardless of equilibrium or the existence of a money-commodity, which can make it useful for the analysis of contemporary capitalism. In this respect, it favourably contrasts with the concept of money used in equilibrium analyses such as the Sraffian.

In equilibrium systems monetary analysis is generally fruitless because all commodities are, by definition, sold. Consequently all labours, and not only those producing the money-commodity, are immediately social (in other words, labour directly produces money and not only commodities). Because of this, the choice of which commodity fulfills the role of numeraire is a matter of fancy, which surely cannot be the case with money.²⁵ In analyses where equilibrium is

²⁴ It should be noted that the number of hours of abstract labour performed in the economy may be different from the total hours worked, unless all workers are equally skilled.

²⁵ See CCPE, Innes (1981), Polanyi (1944), and Vilar (1984 [1969]). Hodgson (1981, p.83) recognizes that '[a]lthough the Sraffa system is conceptually different from a general equilibrium system of the Walrasian type, or even the von Neumann model, these all have one thing in common: they do

the organizing principle the study of non-equilibrium situations, uneven accumulation, crises and inflation is impossible unless arbitrary assumptions are introduced, because the circuit of capital is collapsed into unity and there is no instance in which money can play an autonomous role. The real-monetary dichotomy premised in these analyses is in sharp contrast with Marx's painstaking effort to derive money from commodities and commodity exchange in *Capital 1*, which he considers one of the most important achievements of the book. In sum, money, as it exists in general equilibrium approaches, is a *non-money* in Marx's sense, because it can hardly express values in circulation as prices or be related with the process of realization of these values, except trivially (see chapter 3). These tasks, which in reality are carried out by money, are fulfilled in these models by the assumption of simple reproduction. Therefore, this assumption occupies in these schemes the role of money in Marx's.

The concept of value of money to which the 'new approach' adheres implies that money is essentially command over the newly performed abstract labour. This notion is generalised for prices, which are conceived as commodity owners' claim over the abstract labour performed by society. In other words, prices are money-values concretely reallocated between commodities, in accordance with rules determined by capitalist behaviour. There is no reason why prices should be identical to money-values, and the former are determined irrespective of the ratio between the labour-value of commodities and the labour-value of the money-commodity. The absence of explicit reference to the money-commodity in the analysis allows for unequal exchanges (between commodities produced by distinct quantities of abstract labour) from the

not include money. Clower has shown that money can never be introduced into a stationary-state, general equilibrium model' (see Clower, 1975).

start. This is, once again, in contrast with Marx, for whom such exchanges become systematic only after the transformation.²⁶

This conception of price is methodologically questionable. Its main drawback is that this is simply a circulation-based view of price. Because of this, it fails to give analytical priority to conceptually more fundamental processes such as the performance of labour in production, in contrast with more superficial phenomena such as the relations between supply and demand for each commodity or monopoly power. In other words, the internal structure in the 'new approach' leads it to address the appearances from the start; this is the case in the analysis of unequal exchanges, the lack of proportion between labour-values and prices, and the absence of a money-commodity in the economy. However, this apparent advantage exacts a heavy toll: it becomes very difficult to develop the theory further without making use of arbitrariness in the choice of phenomena to be explained, the judgement of their importance and their relation with other features of reality.

This difficulty is ultimately caused by the manifold (but not haphazard) connections between the various features of reality (see chapter 1 and Murray, 1988). Because of this, the recognition that Marx's two equalities hold is, not surprisingly, in itself insufficient to grant validity to the 'new approach'. The existence of diverse solutions to the transformation problem in which these equalities hold shows that, at least as important as reaching the right

²⁶ 'Any particular commodity can be seen as embodying a certain fraction of the total abstract social labour expended in producing commodities; it also exchanges for a certain amount of money (its price), which represents a possibly different fraction of the aggregate abstract social labour expended.' (Foley, 1982, p.37). In this context, the unit of money is a 'claim to a certain amount of the abstract social labour expended in the economy' (p.37; see also Foley, 1983, Lagueux, 1985, and Mohun, 1990, 1993).

result, is how it is obtained. Unless a sound methodological procedure is followed from the start, the equalities may become an object in their own right with no further analytical significance, and the analysis as a whole becomes prone to faults or unable to explain important aspects of reality, and there is increasing risk that it will be led astray.

6.7 - THE VALUE OF LABOUR POWER

Whilst the Sraffians define the value of labour power as the value of a $(n \times 1)$ vector b of commodities whose consumption is the necessary to reproduce a unit of labour power, the 'new approach' defines it as the share of the net product which the workers can claim with their wages, or the wage rate times the value of money (see section 2; however, Glick and Ehrbar, 1987, argue differently). Labour power is considered a distinct commodity because, in contrast to others, it is not created by a capitalist production process subject to the equalisation of profit rates. On the contrary, the reproduction of labour power depends on the physical and social existence of the working class. Its value is determined by class struggle (see Foley, 1986, p.41, and Lipietz, 1982, p.75).

The 'new' definition of the value of labour power successfully avoids the difficulty, inherent in the Sraffian approach, that once a fixed consumption bundle b is defined it follows that the general rate of profit depends only on the industries which (directly or indirectly) produce the goods in b . Much has been made of this result, which contradicts Marx's conclusion that the production of all commodities affects the general rate of profit.

The difference between the Sraffian and the 'new' definition of the value of labour power owes much to the distinct methodological perspective of these approaches. The Sraffian

conception reflects a very abstract understanding of the value of labour power. It derives from Marx's definition in *Capital 1*, which he finds useful to demonstrate how exploitation is compatible with equal exchange under capitalism. In this context, it is legitimate to represent the value of labour power by the value of a bundle of goods, however it may be determined. Nevertheless, this image has very strict limits. Two of these limits are particularly relevant here; first, the use of this conception of value of labour power and the wage in the transformation problem implies that labour power is the only commodity to be purchased at its value *after* the transformation, which is unjustifiable (see Mohun, 1990, pp.237-40).

Second, this conception ultimately denies the monetary character of the wage. The adherence to a conception of value of labour power which denies the workers the power to spend their wage with some (albeit restricted) freedom is costly, because the Sraffians become unable to distinguish the workers from the goods they consume. This is a serious analytical error, which has led some to the conclusion that it is arbitrary to suppose that workers are exploited, because this model leads to identical results if corn, iron or energy are 'exploited' (see above). Marx may or may not have been aware of this difficulty, but he went to great lengths to emphasize that it is simply wrong to presume that in capitalism the wage could, in general, be paid in kind (see, for example, K2, pp.197, 245, 285 and 290-97).

Although the wage is a sum of money, the workers' possession of a specific sum of the general equivalent is insufficient to grant them the right to purchase, as a class, any commodity that they might want. It would be naive to imagine otherwise, because such a conception would ignore the social role of the wage as the sum of money with which the working class reproduces itself. This implies that the wages cannot be so low that the workers would starve to death, nor so high that they could buy means of production or avoid work

over long periods. Whilst not incompatible with these limits, the 'new' definition of value of labour power is unable to highlight them. This is due to the fact that this is a circulation-based conception of the wage, which captures its (quantitative) limits, but cannot reflect its (qualitative) determinants. They may be incorporated into the analysis at another stage, but cannot be derived from the conception of the value of labour power with which this view of the wage is associated.²⁷

The (relatively more abstract) relation between the value of labour power and the value of a bundle of goods, and the (relatively more concrete) existence of the wage as a sum of money that may be spent with some freedom, set limits to the conceptualization of value of labour power and the wage. These limits are (as was the case with competition, discussed in section 3) influential at distinct analytical levels, which makes a direct confrontation between the Sraffian and the 'new' conceptions of value of labour power logically inadequate. The issue is not which of them is 'right' and which is 'wrong' in the abstract, but what contribution each of them can make to value analysis, at which level of analysis they play a meaningful role, and how they should be connected to each other (see Fine, 1982). This is what Marx seems to be looking for in *Capital*, even

²⁷ 'He [the worker] actually receives a share of the value of the product. But the share he receives is determined by the value of [labour-power], not conversely, the value of [labour-power] by his share of the product. The value of [labour-power], that is, the labour-time required by the worker for his own reproduction, is a definite magnitude; it is determined by the sale of his labour power to the capitalist. This virtually determines his share of the product as well. It does not happen the other way round, that his share of the product is determined first, and as a result, the amount or value of his wages. This is precisely one of Ricardo's most important and most emphasized propositions, for otherwise the price of [labour-power] would determine the prices of the commodities it produces whereas, according to Ricardo, the price of labour determines nothing but *the rate of profit*.' (TSV3, p.94; see also TSV2, p.418, K1, p.1066 and de Vroey, 1985.)

though his analysis of wage labour was left incomplete (see Lebowitz, 1992, 1993).

The 'new' definition of the value of labour power is, therefore, incomplete at best. But it can be criticized from another angle as well. Because of its focus upon circulation and the purchasing power of the wages, this definition of value of labour power is hardly connected with the process of creation of surplus value, the value produced in excess of that necessary to reproduce labour power. In other words, the 'new approach' has difficulty in grasping the distinction between necessary and surplus labour within production or going beyond one of the effects of exploitation, namely the inability of the workers to purchase all the net product.²⁸ This is the same aspect of exploitation which the 'Ricardian socialist' economists emphasized in the early 19th Century (see chapter 3), and this is also the only one which Sraffian analysts discuss (see Bradby, 1982, and Giussani, 1984).

This is not wrong but it is trivial, because it does not lend itself easily to the distinction between exploitation in general and the specifically capitalist form of exploitation.²⁹ In addition, the 'new' notion of value of labour power can be misleading - especially if it dilutes the ability of theory to conceptualise the primary form of class conflict in capitalism (which takes place in production) and, instead, induces the conclusion that

²⁸ See Foley (1982, pp.42-43, and 1986, p.15). The absence of a clear concept of necessary labour time makes the 'new approach' unable to show that '[i]ncrease or diminution in surplus-value is always the consequence, and never the cause, of the corresponding diminution or increase in the value of labour-power.' (K1, p.658)

²⁹ The risk that this might happen is recognised by Foley (1982, p.43); see also Elson (1979b), Guillen-Romero (1984) and Rowthorn 1974). Szumski (1989, 1991) has a different analysis, and heavily criticizes Dumenil for the changed definition of the value of labour power.

exploitation is due to the unfair distribution of income.³⁰ There may also be difficulty with the concept of relative surplus value, which tends to be blurred because the notion of workers' consumption goods is not clearly defined.

This notion of value of labour power may also lead to error if it induces the conclusion that exploitation is due to 'unequal exchanges' between capitalists and workers (which was the Ricardian socialists' opinion), or if it directs the analyst towards the well-known Classical dichotomy between ordinary commodity values, determined by labour embodied, and the value of labour power, given by supply and demand (see de Brunhoff, 1974-75, Laibman, 1974-75, and Sraffa, 1951). Moreover, it may also reinforce the belief that the net product is somehow 'shared' between workers and capitalists at the end of each period of production. The nature of most of these difficulties is clear enough, but the same is not true of the last of them. Let us see why it is wrong and what are the implications.

If all capitals have a uniform turnover period, at the beginning of period t , say, capitalists purchase MP produced in period $t-1$ and hire workers to transform the former into new output. These workers may spend their wages on commodities produced in $t-1$ as well as t , depending on when they are paid and how their expenditures are distributed.³¹

³⁰ In analytical terms, class struggle in production is more fundamental than class struggle in distribution, because the (qualitative) development of the concepts of surplus value and exploitation, on whose basis the real existence of capital and wage labour depends, is prior to the (quantitative) dispute over their magnitude. In practice, class struggle in production is also more fundamental than in distribution, because the latter can hardly point to a way of transcending capitalism.

³¹ Variable capital is conceptually advanced (with constant capital) at the beginning of the production period, but this does not imply that, in Marx's analysis, the wages must be advanced. By the same token, the payment of the wages does not depend upon the sale of the output produced by these workers, otherwise workers employed in construction or

There is no analytical justification to impose restrictions upon the timing of payment or expenditure of the wage, but it is different with surplus value. The surplus value produced in period t is only realized at the end of t , when the output of this period is sold. Hence, capitalists use their income of a period to purchase means of consumption produced in this period, while the workers may buy commodities produced in this as well as in a previous period. Therefore, it is incorrect to argue that, at the end of period t , there is a mass of products to be shared between the capitalists and their employees.

More generally, it is incorrect to argue that part of the value added in each period is given to the workers as wage, because they may be paid, and the wages may be spent, prior to the sale of the output of the period. This analysis shows that aggregate profits and wages are *not* simultaneously determined as the result of a struggle for shares over the net product, however important distributional conflict in capitalism may be. The relation between profits and wages is, therefore, fundamentally distinct from that between industrial profit, interest and rent, which are conflicting claims over the mass of surplus value extracted from the workers. Consequently, the 'new' notion of the value of labour power cannot be the sole basis for the development of a theory of class conflict around income distribution, although it may seem to be sufficient at first sight (see Gleicher, 1989, Lebowitz, 1992, Rowthorn, 1974, and Weeks, 1982).

6.8 - CONCLUDING REMARKS

The contribution of the proponents of the 'new approach' to the long-lasting polemic which surrounds the transformation

agriculture would probably starve to death before they were paid.

problem can be seen from two distinct angles; first, they argue that the net product is the appropriate context for the transformation, dispose of arbitrary normalization conditions through the conceptualization of the value of money, and adopt a more complex and concrete concept of the value of labour power. In doing this, they reject the equilibrium framework in which the transformation was generally discussed in the past and raise several other important issues for value analysis. Each of these contributions should be considered in their own right; they are part of a wider reconsideration of the labour theory of value, and they have a lot to offer beyond the strict bounds of the transformation problem.

In spite of this, in their present form they are open to criticism on several grounds, and their claim to represent a development of Marx's own concepts is fragile at best. One of the main reasons is the focus upon circulation and relative neglect of what Marx himself considers the determining sphere in capitalism, production. The building of links between the innovations introduced by the 'new approach' and Marx's own effort to reconstruct the main categories of the capitalist economy is an extremely difficult task. Its complexity cannot be minimized, and the possibility of success cannot be taken for granted.

The second angle from which the 'new solution' can be evaluated has to do with the reduction of the transformation problem into triviality. This is a consequence of the changed definition of the variables (and, ultimately, the redefinition of the problem as a whole) that follows from the view of the labour theory of value upon which the 'new approach' is based. The transformation becomes trivial because, in this context, Marx's two aggregate equalities are turned into identities. This innovative result is very important, because it has shifted the grounds of the transformation debate. As a result, the validation of the

aggregate equalities is no longer an issue, because they always hold.

The simultaneous verification of the two equalities in the 'new approach' is not simply the result of a play with definitions. On the contrary, it is the outcome of a careful development of that view of Marx's theory of value which derives from Rubin and Aglietta. This view surely represents the concepts and method of Marx's theory of value more faithfully than the Sraffian (or equilibrium approaches in general), and it has shown its power by displacing some of the trivialities which have, for a long time, bogged down theoretical advance. Unfortunately, however, the 'new approach' cannot account for the full complexity of the relationship between values and prices. This is because it lacks an internal structure grounded upon Marx's method. The absence of a structure such as this is the reason why the proponents of the 'new approach' fail to recognize the conceptual importance of the transformation of values into prices of production, and agree with the Sraffians that the fundamental 'error' in Marx's procedure is the non-transformation of input values (see, for example, Dumenil, 1980, p.8, Lipietz, 1982, pp.64-65, and Mohun, 1993, p.5).

The peculiarities of its internal structure create severe problems for the further development of the 'new approach'. The most important is that, because the 'new approach' posits an identity between content (e.g., value) and form of expression (price), the content itself may lose its own distinctive stature and become redundant with the further development of the inquiry (see, for example, the analysis in de Vroey, 1985, esp. p.47). This would be a sad outcome. In addition, the structure of the 'new approach' makes it vulnerable to the charges of tautology (because of the way in which it validates Marx's equalities) and empiricism (because it does not highlight the structures whose development underlies value analysis).

The best way to avoid these problems is to recognize the logical context in which Marx develops his theory of value and put to the forefront the real and logical issues involved in the transformation. If this is done, the aggregate relations between value and price, and surplus value and profit, which the 'new approach' obtains, could no longer be attributed to the redefinition of the variables. They would, instead, hold because they are a reflex of the transformation of the variables themselves, whose meaning should shift according to the level of abstraction of the analysis. In accordance with this, their forms of appearance should become increasingly complex as the reconstruction in thought of the main categories of the capitalist mode of production progresses.³²

For this reason, it is not strictly correct to say that total profit is 'equal' to total surplus value, that total value is 'equal' to total price, or even that the labour-value of the net product divided by the value of money is 'identical' to the price of the net product. For Marx, commodity prices are simply the form of appearance of the abstract labour performed in the economy, and profits (inclusive of interest and rent) are nothing but the form of appearance of surplus value. Values and prices (or surplus value and profits) cannot be quantitatively compared with one another because the form of appearance of something cannot be put into quantitative relation with its own essence; the link between them is qualitative.³³

³² See chapter 5. As Smith (1990, p.167) put it, 'It is of the essence of dialectical theories that simple and abstract determinations (prices proportional to values) lead to more complex and concrete ones (prices that are not so proportional) that cannot be simply reduced to the former. A theory can hardly be said to have refuted itself when it does what it sets out to do!'

³³ The most conspicuous case of quantitative comparison between prices and values is probably the use of

The 'new approach' has performed many services for the labour theory of value. The greatest of them is a major contribution for the recasting of previous debates under a new light, and the shifting of the terms of the transformation debate into more substantive issues, as far as Marx's value theory is concerned (such as the nature of value and price, the value of labour power and the value of money). This will help restore the transformation to its rightful place within *Capital*. It will no longer be seen as a self-contained exercise aimed at the calculation of equilibrium prices, and its connection with the theory of wages, accumulation and technical change, as well as the law of the tendency of the rate of profit to fall and the study of crises, will be more fully recognized.

'price-value multipliers' in Bortkiewicz (1949 [1907]) and Seton (1957), but value and price rates of profit are often compared (see Flaschel, 1984, Lipietz, 1984, Morishima, 1973, and Steedman, 1977). This procedure is criticized by Fine (1986a), Kliman and McGlone (1988), Pilling (1980), Smith (1990) and de Vroey (1982).

CONCLUSION

This thesis analyses the relationship between labour, value, money and price from the point of view of Marx's theory of value. These categories are conceived as historically determined modes of existence of capitalist social relations, and their features are considered in a context where equilibrium assumptions are unwarranted. The conception of the labour theory of value developed in this study is based upon Marx's own methodology, and builds upon some of the most distinctive features of his critique of political economy.

The analysis of the 'new dialectics', in the first chapter of this thesis, shows that this approach to Marx's method has important contributions to offer to value analysis. The 'new dialectics' conceives the labour theory of value as a systematic theory, which aims at the reconstruction in thought of the main features of the capitalist mode of production. It strives to reach this objective through the application of the rules of dialectical logic, starting from the identification of the cell-form of this system, the (capitalist) commodity. The unfolding of the contradictions in the concept of commodity leads to the introduction of relatively simple and abstract concepts, such as use value, exchange value and money. Their own gradual unfolding unveils other concepts, more complex and concrete, such as surplus value, capital, and the rate of profit. As the process continues, a systematic and consistent reconstruction of the real gradually develops in the mind.

This approach is persuasive, and Marx makes extensive use of a similar procedure in *Capital* and elsewhere. However, it cannot be argued that the principles of the 'new dialectics' encompass all the main elements of Marx's method. For example, it is undeniable that Marx periodically

incorporates masses of historical and social material into his analysis, and their role cannot be reduced to an accessory position, as the 'new dialectics' wants. This chapter argues that the 'new dialectics' fails to appreciate that the requirement that complex concepts should be derived from the contradictions in simpler ones is not the most important feature of Marx's use of dialectics. Rather, what matters most is why, how and when new concepts and new material should be incorporated into the analysis, such that it becomes richer, more solid, and better able to grasp the determining features of the concrete.

The second chapter makes a systematic analysis of the real processes behind the abstraction of labour and the equivalence between distinct commodities in exchange. This study is predicated upon the contrast between production- and circulation-based views of the labour theory of value, and leads to the development of the notions of normalization, synchronization and homogenization of labours, and the concepts of living and virtual labour. They provide the basis for a detailed critique of three of the best-known views of the relationship between abstract labour and value, the 'traditional Marxism' of Dobb, Meek and Sweezy, the Sraffian critique of Marx developed by Ian Steedman and others, and the 'abstract labour' version of Marx's value theory, elaborated by followers of Rubin.

These three approaches analyse the capitalist economy from the point of view of circulation. Because of this, they fail to identify abstract labour correctly, which makes it difficult for them to represent the concept of value adequately. In contrast, the approach outlined in this chapter departs from the sphere of production, and can be used to develop an integrated analysis of labour, value and money based on the labour theory of value.

These principles were applied in a different context in chapter 3. In this chapter, the structure of Marx's theory of value and money is scrutinized through a reconstruction of his critique of the labour-money scheme. This is important because, even though the proponents of the labour-money scheme accept that labour is the source of value (and use this to derive policy prescriptions), their proposals are inconsistent. This chapter uses the interpretation of the labour theory of value developed in chapter 2 to peer into the structure of Marx's own value theory and, simultaneously, to demonstrate the difficulties with the labour-money scheme. In doing this, the consistency and usefulness of the views developed in the previous chapter are put to the test.

In the fourth chapter the concepts of technical, organic and value composition of capital are defined, and distinguished from one another. The aim of this chapter is two-fold; first, it reconstitutes the evolution of Marx's own use of these terms through the years, and compares them with the different perceptions of the composition of capital held by the literature. Second, it contrasts the OCC and the VCC in a static environment, where there is no technical change, and in a dynamic one, where commodity values tend to fall at each period.

Whilst the reconstruction of Marx's use of these terms is important because it shows that most of the literature misconceives the meaning of the technical, organic and value compositions of capital, the contrast between the OCC and the VCC in the static and dynamic cases is relevant because it lends itself to the analysis of several complex problems in the labour theory of value, among them the transformation problem and the law of the tendency of the rate of profit to fall (LTRPF). The impact of the distinction between OCC and VCC upon the transformation of values into prices of production is developed in chapter 5 (the impact of this

distinction with regard to the LTRPF is considered in Fine, 1992).

The analysis of the transformation problem in the fifth chapter shows that, for Marx, the transformation of value into price has two distinct stages. In the first, the value of the elements of the means of production used up by each capital is immaterial; at this stage, the analysis emphasizes the principle that value is produced by labour alone. For this reason, Marx says that the greater is the variable part of the advanced capital, the higher is the profit rate. When these rates are averaged out, the surplus value is distributed according to the size of each capital; this is what determines prices of production distinct from (the money expression of) commodity values.

In the second stage, Marx analyses the economy at the level of price; all commodities are sold at price, and the input prices are taken into account. Consequently, the transformation corresponds to a change in the level of abstraction of the analysis; this process brings about a greater determination in the form of social labour, whereby the distribution of labour and surplus value across the economy is explained.

The distinction between the OCC and the VCC, laid out in chapter 4, is essential for these results and, more generally, for the correct interpretation of the transformation problem. In particular, it shows that Marx's interest lies in the conceptual relationship between labour, price and profit, and not the calculation of the price vector or the (value or price) rate of profit. These results are contrasted with those reached by most of the literature, which tends to conceive the transformation as due to the different VCCs of capitals invested in distinct branches of industry. Because most writers' conception of the relation between value and price is sharply distinct from Marx's, and

as they address issues that are not of concern to Marx at this stage, they cannot claim to 'correct' errors in Marx's transformation procedure; rather, their approaches are either alternatives to those laid out in *Capital 3*, or they address a different set of issues.

The sixth and final chapter makes a critical evaluation of the contribution of the so-called 'new approach' to the transformation problem. This approach is contrasted with previous Sraffian solutions, and shown to be superior to them on two grounds; first, it rejects the equilibrium framework in which the transformation is often discussed. Second, it displaces the preoccupation with the circumstances in which the aggregate equalities between value and price, and surplus value and profit, hold. Instead, the 'new approach' argues for the identity between these magnitudes. This result is very important, because it shifts the grounds of the transformation debate; as a result, the validation of the aggregate equalities is no longer an issue in the discussion.

Nevertheless, the relationship between the method adopted in the 'new approach' and Marx's own is fragile. This approach focuses upon circulation, and neglects the perspective of production (that was discussed in detail in chapter 2). Because of the absence of an internal structure similar to that of *Capital*, the 'new approach' cannot adequately conceptualize either value or its form of expression as price. In particular, because this approach departs from an identity between content and form of expression, the content itself (in this case, value) eventually loses its own distinctive stature and becomes increasingly redundant as the analysis develops.

The further development of the work in the thesis will lead to a better integration of value theory with the theory of wages, accumulation and technical change, and to a better

understanding of the dynamics of the profit rate. It will also be useful for the study of economic crises. Therefore, the research carried out in this thesis is not finished, and the arguments have not reached an end. On the contrary, it is merely at the beginning, and some of the most important issues in value theory remain to be considered. This is the best possible conclusion for a work in the tradition of the labour theory of value, because it allows the inquiry to project itself into the future, and thus realize its inner potential.

REFERENCES

AGLIETTA, Michel (1979 [1976]). A Theory of Capitalist Regulation, the US Experience. London: New Left Books.

AGLIETTA, Michel & ORLEAN, Andre (1982). La Violence de la Monnaie. Paris: PUF.

ALLIO, Renata (1978). Le Contraddizioni Economiche di Proudhon Nella Critica di Marx. Bologna: Patron Editore.

ALTHUSSER, Louis (1969 [1965a]). For Marx. London: New Left Books.

----- (1970 [1965b]). Reading Capital. London: New Left Books.

ANDERSON, Kevin (1983). The 'Unknown' Marx's 'Capital', Volume I: The French Edition of 1972-75, 100 Years Later. History of Political Economy, 15 (4), pp.71-80.

ANGELIS, Massimo de (1993). Abstracting from the Concreteness of Needs: A Discussion of Work, Autonomy and Abstract Labour as Substance of Value. Unpublished manuscript.

ARNON, Arie (1984). Marx's Theory of Money: the Formative Years. History of Economic Thought, 16 (4), pp.555-575.

ARTHUR, Chris (1992). Marx's Capital: A Student Edition. London: Lawrence & Wishart.

----- (1993a). "Hegel's 'Logic' and Marx's 'Capital'". In: Moseley (1993a).

----- (1993b). Review of Ali Shamsavari's 'Dialectics and Social Theory: The Logic of Capital'. Capital & Class, 50, Summer, pp.175-180.

----- (n.d.). The Subsumption of Labour Under Capital. Unpublished Manuscript.

ATTEWELL, Paul A. (1984). Radical Political Economy: A Sociology of Knowledge Analysis. New Brunswick, N.J.: Rutgers University Press.

BACKHAUS, Hans-Georg (1974 [1969]). Dialectique de la Forme Valeur. Critiques de l'Economie Politique, 18, Octobre-Decembre, pp.5-33.

BANAJI, Jairus (1979). "From the Commodity to Capital: Hegel's Dialectic in Marx's 'Capital'". In: Elson (1979a).

BARAN, Paul & SWEEZY, Paul M. (1966). Monopoly Capital. New York: Monthly Review Press.

BAUMOL, William J. (1974). The Transformation of Values: What Marx "Really" Meant (An Interpretation). Journal of Economic Literature, 12 (1) pp.51-62.

----- (1992). "Wages, Virtue and Value: What Marx Really Said." In: Caravale (1992).

BEER, Max (1953). A History of British Socialism, 2 Vols. London: G. Allen & Unwin.

BELLOFIORE, Riccardo (1989). A Monetary Labor Theory of Value. Review of Radical Political Economics, 21 (1-2), pp.1-26.

BENETTI, Carlo (1974). Valeur et Repartition. Paris: F. Maspero.

BENETTI, Carlo & CARTELIER, Jean (1980). Marchands, Salarier et Capitalistes. Paris: F. Maspero.

BOHM-BAWERK, Eugen von (1949 [1896]). "Karl Marx and the Close of His System." In: Karl Marx and the Close of His System. (ed. by P. M. Sweezy). Clifton: A. M. Kelley.

BOLOGNA, Sergio (1993a, 1993b). Money and Crisis: Marx as Correspondent of the New York Daily Tribune, 1856-57. Parts 1 and 2. Common Sense, 13, January, pp.29-53, and 14, October, pp.63-89.

BONEFELD, Werner (1992). "Social Constitution and the Form of the Capitalist State". In: Bonefeld, Gunn & Psychopedis (1992), Vol. 1.

BONEFELD, Werner; GUNN, Richard & PSYCHOPEDIS, Kosmas (eds.) (1992). Open Marxism, 2 Vols. London: Pluto Press.

BORTKIEWICZ, Ladislaus von (1949 [1907]). "On the Correction of Marx's Fundamental Theoretical Construction on the Third Volume of Capital." In: Bohm-Bawerk (1949).

----- (1952 [1906-07]). Values and Prices in the Marxian System. International Economic Papers, 2, pp.5-60.

BOWLES, S. & GINTIS, H. (1977). The Marxian Theory of Value and Heterogeneous Labour: Critique and Reformulation. Cambridge Journal of Economics, 1 (2), pp.173-192.

----- (1981). Labour Heterogeneity and the Labour Theory of Value: A Reply. Cambridge Journal of Economics, 5 (3), September, pp.285-288.

BRADBY, Barbara (1982). The Remystification of Value. Capital & Class, 17, Summer, pp.114-133.

BRAVERMAN, Harry (1979). Labour and Monopoly Capital. New York: Monthly Review Press.

BRAY, John (1931 [1831]). Labour's Wrongs and Labour's Remedy; or, The Age of Might and the Age of Right. London: LSE Reprints.

BRIGHTON LABOUR PROCESS GROUP (1977). The Capitalist Labour Process. Capital & Class, 1, Spring, pp.3-26.

BRODY, Andras (1974 [1969]). Proportions, Prices and Planning: A Mathematical Restatement of the Labour Theory of Value. Amsterdam: North Holland.

BRONFENBRENNER, Martin (1973). Samuelson, Marx, and Their Latest Critics. Journal of Economic Literature, 11 (1), pp.58-63.

BRUNHOFF, Suzanne de (1973a). La Politique Monetaire: Un Essai d'Interpretation Marxiste. Paris: Presses Universitaires de France.

----- (1973b). Marx as an a-Ricardian: Value, Money and Price at the Beginning of 'Capital'. Economy & Society, 2 (3), August, pp.412-430.

----- (1974-75). Controversies in the Theory of Surplus Value: A Reply to John Eatwell. Science & Society, 38 (4), Winter, pp.478-482.

----- (1976 [1966]). Marx on Money. New York: Urizen Books.

----- (1978). L'Equilibre ou la Monnaie. Economie Appliquee, 31 (1-2), pp.35-59.

----- (1979). Les Rapports d'Argent. Grenoble: Presses Universitaires de Grenoble.

BRUNHOFF, Suzanne de & EWENCZYK, Paul (1979). "La Pensee Monetaire de K. Marx au XIXe et au XXe Siecle." In: Brunhoff (1979).

BURKETT, Paul (1986). A Note on Competition under Capitalism. Capital & Class, 30, Winter, pp.192-208.

----- (1991). Some Comments on 'Capital in General and the Structure of Marx's "Capital"'. Capital & Class, 44, Summer, pp.49-72.

CAFFENTZIS, George (1993). Why Machines cannot Create Value, or Marx's Theory of Machines. Part 1. Unpublished manuscript.

CAMPBELL, Martha (1993). "Marx's Concept of Economic Relations and the Method of 'Capital'." In: Moseley (1993a).

CARAVALLE, G. A. (ed.) (1992). Marx and Modern Economic Analysis, 2 Vols. Aldershot: Edward Elgar.

CARCHEDI, Guglielmo (1984). The Logic of Prices as Values. Economy & Society 13 (4), pp.431-455. Reprinted in Fine (1986a).

----- (1991). Frontiers of Political Economy. London: Verso.

----- (1994). "From Reproduction Values to Production Prices." In: Freeman & Carchedi (1994).

CARLING, Alan (1986). Rational Choice Marxism. New Left Review, 160, November-December, pp.24-62.

CARTELIER, Jean (1987). Mesure de la Valeur et Systeme Monetaire: La Tentative de Gray (1848). Textes et Commentaire. Cahiers d'Economie Politique, 13, pp.191-208.

CARVER, Terrell (1980). Marx's 1857 Introduction. Economy & Society, 9 (2), pp.197-203.

CATEPHORES, George (1986). The Historical Transformation Problem: a Reply. Economy & Society, 9 (3), August, pp.332-336. Reprinted in Fine (1986a).

----- (1989). An Introduction to Marxist Economics. London: Macmillan.

CLARKE, Simon (ed.) (1991). The State Debate. London: CSE/Macmillan.

----- (1994). Marx's Theory of Crisis. London: Macmillan.

CLEAVER, Harry (1979). Reading 'Capital' Politically. Brighton: The Harvester Press.

----- (1990). Competition? Or Cooperation? Common Sense, 9, April, pp.20-23.

CLOWER, R. W. (1975). Reflections of a Keynesian Perplex. Zeitschrift fur Nationalokonomie, 35 (1-2), pp.1-24.

COHEN, Gerry A. (1974). Marx's Dialectic of Labor. Philosophy and Public Affairs, 3 (3), Spring, pp.235-261.

----- (1981). "The Labour Theory of Value and the Concept of Exploitation." In: Steedman (1981a).

COLLETTI, Lucio (1973 [1969]). Marxism and Hegel. London: New Left Books.

DESAI, Meghnad (1989). The Transformation Problem. Journal of Economic Surveys, 2 (4), pp.295-333.

----- (1992). "The Transformation Problem". In: Caravale (1992).

DEVINE, (1989). What is 'Simple Labour'? A Re-examination of the Value-Creating Capacity of Skilled Labour. Capital & Class, 39, Winter, pp.113-131.

DMITRIEV, V. (1974 [1904]). Economic Essays on Value, Competition and Utility. Cambridge: Cambridge University Press.

DOBB, Maurice (1940). Political Economy and Capitalism. London: Routledge and Kegan Paul.

----- (1967). Marx's 'Capital' and Its Place in Economic Thought. Science & Society, 31 (4), pp.527-540.

DOSTALER, Gilles (1978). Valeur et Prix: Histoire d'un Debat. Paris: F. Maspero.

DOSTALER, Gilles & LAGUEUX, Maurice (1985). Un Echiquier Centenaire: Theorie de la Valeur et Formation des Prix. Paris: La Decouverte.

DUMENIL, Gerard (1980). De la Valeur aux Prix de Production. Paris: Economica.

----- (1983-84). Beyond the Transformation Riddle: A Labor Theory of Value. Science & Society, Winter, pp.427-450.

----- (1984). The So-Called "Transformation Problem" Revisited: A Brief Comment. Journal of Economic Theory, 33, pp.340-348.

DUMENIL, Gerard & LEVY, Dominique (1984). The Unifying Formalism of Domination - Value, Price, Distribution and Growth in Joint Production. Journal of Economics - Zeitschrift fur Nationalokonomie, 44 (4), pp.349-371.

----- (1987). Value and Natural Price Trapped in Joint Production Pitfalls. Journal of Economics - Zeitschrift fur Nationalokonomie, 47 (1), pp.15-46.

----- (1989) Labor Values and the Imputation of Labor Contents. Metroeconomica, 40 (2) pp.159-178.

----- (1991). Szumski's Validation of the Labour Theory of Value: A Comment. Cambridge Journal Of Economics, 15 (3), pp.359-364.

DUNNE, Paul (ed.) (1991). Quantitative Marxism. Cambridge: Polity Press.

DUSSEL, Enrique (1985). La Produccion Teorica de Marx: Un Comentario a los Grundrisse. Mexico, D.F.: Siglo Veintiuno.

----- (1988). Hacia un Marx Desconocido: Un Comentario a los Manuscritos del 61-63. Mexico D.F.: Siglo Veintiuno.

----- (1990). El Ultimo Marx (1863-1882) y la Liberacion Latinoamericana. Mexico, D.F.: Siglo Veintiuno.

EATWELL, J. (1974-75). Controversies in the Theory of Surplus Value: Old and New. Science & Society, 38 (3), Winter, pp.281-303.

ECHEVERRIA, (1978). A Critique of Marx's 1857 Introduction. Economy & Society, 7 (4), November, pp.333-366.

----- (1980). The Concrete and the Abstract in Marx's Method: A Reply to Terrell Carver. Economy & Society, 9 (2), May, pp.204-17.

EHRBAR, Hans (1989). Mathematics and the Labor Theory of Value. Review of Radical Political Economics, 21 (3), Fall, pp.7-12.

ELDRED, Michael (1984). A Reply to Gleicher. Capital & Class, 23, Summer, pp.135-37.

ELDRED, Michael & HANLON, Marnie (1981). Reconstructing Value-Form Analysis. Capital & Class, 13, Spring, pp.24-60.

ELLIOTT, J. E. (1978-79). Marx's 'Grundrisse' Vision of Capitalism's Creative Destruction. Journal of Post-Keynesian Economics, 1 (2), Winter.

ELSON, Diane (ed.) (1979a). Value: The Representation of Labour in Capitalism. London: CSE Books.

----- (1979b). "The Value Theory of Labour". In: Elson (1979a).

ENGELS, Friedrich (1978 [1884]). Preface of 'Capital' Volume 2. Harmondsworth: Penguin.

----- (1981a [1894]). Preface of 'Capital' Volume 3. Harmondsworth: Penguin.

----- (1981b [1895]). Supplement to Volume 3 of 'Capital'. Harmondsworth: Penguin.

EVANS, M. (1984). Marx's First Confrontation with Political Economy - The 1844 Manuscripts. Economy & Society, 13 (2), pp.115-152.

FARJOUN, Emmanuel (1984). "The Production of Commodities by Means of What?" In: Mandel & Freeman (1984).

FINE, Ben (1980). Economic Theory and Ideology. London: Edward Arnold.

----- (1982). Theories of the Capitalist Economy. London: Edward Arnold.

----- (1983). A Dissenting Note on the Transformation Problem. Economy & Society, 12 (4), pp.520-525. Reprinted in Fine (1986a).

----- (1985-86). Banking Capital and the Theory of Interest. Science & Society, 49 (4), Winter, pp.387-413.

----- (ed.) (1986a). The Value Dimension: Marx versus Ricardo and Sraffa. London/New York: Routledge and Kegan Paul.

----- (1986b). "Introduction". In: Fine (1986a).

----- (1988). From Capital in Production to Capital in Exchange. Science & Society, 52 (3), Fall, pp.326-337.

----- (1989). Marx's Capital (3rd. ed.). Basingstoke: Macmillan.

----- (1990a). On the Composition of Capital: A Comment on Groll and Orzech. History of Political Economy. 22 (1), pp.149-155.

----- (1990b). Segmented Labour Market Theory: An Assessment. Thames Papers in Political Economy, Spring.

----- (1992). "On the Falling Rate of Profit". In: Caravale (1992).

FINE, Ben & HARRIS, Laurence (1976). Controversial Issues in Marxist Economic Theory. Socialist Register, pp.141-178.

----- (1977). Surveying the Foundations. Socialist Register, pp.106-120.

----- (1979). Rereading Capital. London: Macmillan.

FLASCHEL, Peter (1984). The So-Called "Transformation Problem" Revisited: A Comment. Journal of Economic Theory, 33, pp.349-351.

FOLEY, Duncan (1982). The Value of Money, the Value of Labour Power and the Marxian Transformation Problem. Review of Radical Political Economics, 14 (2), pp.37-47.

----- (1983). On Marx's Theory of Money. Social Concept 1 (1), May, pp.5-19.

----- (1986). Understanding Capital: Marx's Economic Theory. Cambridge, Mass.: Harvard University Press.

FRACCHIA, Joseph & RYAN Cheyney (1992). "Historical-Materialist Science, Crisis and Commitment". In: Bonefeld, Gunn & Psychopedis (1992), Vol. 2.

FREEMAN, Alan (1984). "The Logic of the Transformation Problem". In: Mandel & Freeman (1984).

----- (1994). Reappraising the Classics: The Case for a Dynamic Reformulation of the Labour Theory of Value. Capital & Class (forthcoming).

FREEMAN Alan & CARCHEDI, Guglielmo (eds.) (1994). The Alternative to Equilibrium: A Reappraisal of Classical Economics. London: Edward Elgar (forthcoming).

GANSSMANN, Heiner (1981). Transformation of Physical Conditions of Production: Steedman's Economic Metaphysics. Economy & Society, 10 (4), pp.403-422. Reprinted in Fine (1986a).

----- (1983). Marx Without the Labour Theory of Value. Social Research, 50 (2), pp.278-304.

GERSTEIN, Ira (1976). Production, Circulation and Value: The Significance of the 'Transformation Problem' in Marx's Critique of Political Economy. Economy & Society, 5 (3), August, pp.243-291. Reprinted in Fine (1986a).

GIUSSANI, Paolo (1984). "Labour-Power: The Missing Commodity." In: Mandel & Freeman (1984).

----- (1986). Value and Labour: Simple and Complex Labour in the Labour Theory of Value. Working Paper n. 7, Centre for Political Science, Vrije Universiteit Brussel, Brussels.

----- (1991-92). The Determination of Prices of Production. International Journal of Political Economy, 21 (4), Winter, pp.67-86.

----- (1994). "Values in Joint Production". In: Freeman & Carchedi (1994).

GLEICHER, David (1983). A Historical Approach to the Question of Abstract Labour. Capital & Class, 21, Winter, pp.97-122.

----- (1989). Labor Specialization and the Transformation Problem. Review of Radical Political Economics, 21 (1-2), pp.75-95.

GLICK, M. & EHRBAR, H. (1986-87). The Labour Theory of Value and Its Critics. Science & Society, 50 (4), Winter, 464-478.

----- (1987). The Transformation Problem: An Obituary. Australian Economic Papers, 26 (49), pp.294-317.

GOODE, Patrick (1973). The Law of Value and Marx's Method. Bulletin of the Conference of Socialist Economists, 2 (6), Autumn, pp.65-69.

GRAY, Alexander (1947). The Socialist Tradition: Moses to Lenin. London: Longmans, Green & Co.

GRAY, John (1831). The Social System. Edinburgh.

----- (1848). Lectures on the Nature and Use of Money.
Edinburgh.

GROLL, Ze'ev B. & ORZECZ, Shalom. (1987). Technological Progress and Values in Marx's Theory of the Decline in the Rate of Profit: an Exegetical Approach. History of Political Economy 19 (4), pp.591-613.

----- (1989a). Stages in the Development of a Marxian Concept: the Composition of Capital. History of Political Economy 21 (1), pp.57-76.

----- (1989b). From Marx to the Okishio Theorem: A Genealogy. History of Political Economy 21 (2), pp.253-272.

----- (1990). Capital-Labor Relations: Consistency or Complication? A Reply to Ben Fine. History of Political Economy, 22 (1), pp.155-165.

GUILLEN-ROMERO, Hector (1984). "Marx, Sraffa and the Neo-Ricardians in Context". In: Mandel & Freeman (1984).

GUNN, Richard (1992). "Against Historical Materialism: Marxism as a First-Order Discourse". In: Bonefeld, Gunn & Psychopedis (1992), Vol. 2.

HABERLER, Gottfried (1966). Marxian Economics in Retrospect and Prospect. Zeitschrift fur Nationalokonomie, 26, January, pp.69-82.

HARCOURT, Geoffrey C. (1972). Some Cambridge Controversies in the theory of Capital. Cambridge: Cambridge University Press.

HARVEY, David (1982). The Limits to Capital. Oxford: Basil Blackwell.

HARVEY, Philip (1983). Marx's Theory of the Value of Labour Power: An Assessment. Social Research, 50 (2), pp.305-344.

----- (1985). The Value-Creating Capacity of Skilled Labor in Marxian Economics. Review of Radical Political Economics, 17 (1-2), pp.83-102.

HEGEL, G. W. F. (1991 [1830]). The Encyclopedia Logic. Indianapolis: Hackett Publishing, Inc.

----- (1993 [1812-16]). The Science Logic. New York: Allen & Unwin.

HEINRICH, Michael (1989). Marx's Theory of Capital. Capital & Class, 38, Summer, pp.63-79.

HENDERSON, James P. (1985). "An English Communist, Mr. Bray [and] His Remarkable Work." History of Political Economy, 17 (1), pp.73-95.

HILFERDING, Rudolf (1949 [1904]). "Bohm-Bawerk's Criticism of Marx". In: Bohm-Bawerk (1949).

HIMMELWEIT, Sue & MOHUN, Simon (1981). "Real Abstractions and Anomalous Assumptions". In: Steedman (1981a).

HODGSON, Geoffrey (1973). Marxian Epistemology and the Transformation Problem. Bulletin of the Conference of Socialist Economists, Autumn. Reprinted in Economy & Society, 3 (4), pp.357-392, 1974.

----- (1981). Money and the Sraffa System. Australian Economic History Review, 20 (36), pp.83-95.

HOLLOWAY, John (1992). "Crisis, Fetishism and Class Composition". In: Bonefeld, Gunn, & Psychopedis (eds.) Open Marxism, vol. 2. London: Pluto Press.

----- (1994). Global Capital and the National State. Capital & Class, 52, Spring, pp.23-50.

HOWARD, M. C. & KING, J. E. (1987). F. Engels and the Prize Essay Competition on the Marxian Theory of Value. History of Political Economy, 19 (4), pp.571-589.

----- (1989, 1991). A History of Marxian Economics, 2 Vols. London: Macmillan.

HUNT, E. K. (1984). Was Marx a Utopian Socialist? Science & Society, 48 (1), Spring, pp.90-97.

ILYENKOV, E. V. (1982 [1979]). The Dialectics of the Abstract and the Concrete in Marx's 'Capital'. Moscow: Progress Publishers.

INDART, Gustavo (n.d.). The Microeconomic Foundation of the Theory of Market Value Determination. Unpublished manuscript.

INNES, Duncan (1981). Capitalism and Gold. Capital & Class, 14, Summer, pp.5-35.

ITOH, Makoto (1987). Skilled Labour in Value Theory. Capital & Class, Spring, pp.39-58.

KAY, Geoffrey (1979). "Why Labour is the Starting Point of Capital". In: Elson (1979a).

KIMBALL, Janet (1948). The Economic Doctrines of John Gray. Catholic University of America, Studies in Economics n.21. Washington, D.C.: Catholic University.

KING, J. E. (1983). Utopian or Scientific? A Reconsideration of the Ricardian Socialists. History of Political Economy, 15 (3), pp.345-373.

KLIMAN, A. & McGLONE, T. (1988). The Transformation non-Problem and the non-Transformation Problem. Capital & Class, 35, Summer, pp.56-83.

KOSIK, Karel (1976). Dialectics of the Concrete: A Study on Problems of Man and World. Dordrecht/Boston: D. Reidel Publishing Company.

LAGUEUX, Maurice (1985). "Le Principe de la Conservation de la Valeur et le Probleme de la Transformation". In: Dostaler & Lagueux (1985).

LAIBMAN, David (1973). Values and Price of Production: the Political Economy of the Transformation Problem. Science & Society, 37 (4), Winter, pp.404-436.

----- (1974-75). Controversies in the Theory of Surplus Value: A Comment. Science & Society, 38 (4), Winter, pp.482-487.

LANGSTON, Robert (1984). "A New Approach to the Relation Between Prices and Values". In: Mandel & Freeman (1984).

LAPAVITSAS, Costas (1991). The Theory of Credit Money: A Structural Analysis. Science & Society, 55 (3), Fall, pp.291-322.

----- (1992). A Model of Money Hoard Formation in the Circuit of Capital. Mimeo.

LEBOWITZ, Michael A. (1992). Beyond Capital: Marx's Political Economy of the Working Class. London: Macmillan

----- (1993). The 'Book on Wage-Labor' and Marxist Scholarship. Science & Society, 57 (1), Spring, pp.66-73.

----- (1994a). Analytical Marxism and the Marxian Theory of Crisis. Unpublished manuscript.

----- (1994b). The Theory of the Capitalist State. Unpublished manuscript.

LEE, Chai-On (1990). On the Three Problems of Abstraction, Reduction and Transformation in Marx's Labour Theory of Value. PhD Thesis, University of London.

----- (1993). Marx's Labour Theory of Value Revisited. Cambridge Journal of Economics, 17 (4), December, pp.463-78.

LENIN, Vladimir I. (1972 [1929]). "Conspectus of Hegel's Book 'The Science of Logic'". In: Collected Works, Vol. 38. London: Lawrence & Wishart.

LERNER, Abba P. (1972). A Note on 'Understanding the Marxian Notion of Exploitation'. Journal of Economic Literature, 10 (1), pp.50-51.

LEVIDOW, Les & YOUNG, Bob (1981, 1985). Science, Technology and the Labour Process: Marxist Studies, 2 Vols. London: Free Association Books.

LIPIETZ, Alain (1979a). Crise et Inflation, Pourquoi? Paris: F. Maspero.

----- (1979b). Nouvelle Solution au Probleme de la Transformation: les Cas du Capital Fixe et de la Rente. Recherches Economiques de Louvain, 45, Decembre, pp.371-389.

----- (1982). The So-Called "Transformation Problem" Revisited. Journal of Economic Theory, 26 (1), January, pp.59-88.

----- (1983). Le Monde Enchante: De la Valeur a l'Envol Inflationiste. Paris: La Decouverte/ F. Maspero.

----- (1984). The So-Called "Transformation Problem" Revisited: A Brief Reply to Brief Comments. Journal of Economic Theory, 33 (2), pp.352-355.

----- (1990). Inflation, North and South: Monetary Aspects. Working Papers of the CEPREMAP, no. 9017.

LUKACS, George (1971 [1922]). History and Class Consciousness. London: Merlin Press.

MAGE, Shane (1963). The Law of the Falling Tendency of the Rate of Profit: Its Place in the Marxian System and Relevance to the US Economy. PhD Thesis, Columbia University.

MANDEL, Ernest (1968). Marxist Economic Theory. London: Merlin Press.

----- (1984). "Gold, Money, and the Transformation Problem". In: Mandel & Freeman (1984).

MANDEL, Ernest & FREEMAN, Alan (eds.) (1984). Ricardo, Marx, Sraffa. London: Verso.

MARX, Karl (1978a [1956], 1969 [1959], 1972 [1962]). Theories of Surplus Value, 3 Vols. London: Lawrence & Wishart.

----- (1981a [1953]). Grundrisse. Harmondsworth: Penguin.

----- (1976 [1867], 1978b [1884], 1981b [1894]). Capital, 3 Vols. Harmondsworth: Penguin.

----- (1987 [1859]). A Contribution to the Critique of Political Economy. Collected Works, Vol. 29, pp.257-417. London: Lawrence & Wishart.

----- (1989a [1891]). Critique of the Gotha Programme. Collected Works, Vol. 24, pp.77-99. London: Lawrence & Wishart.

----- (1989b [1930]). Marginal Notes on Adolph Wagner's 'Lehrbuch der Politischen Okonomie'. Collected Works, Vol. 24, pp.531-559. London: Lawrence & Wishart.

----- (1988 [1928]). Letter to Kugelmann, July 11, 1868. Collected Works, Vol.43, pp.67-70. London: Lawrence & Wishart.

MATTICK, Paul Jr. (1991-92). Some Aspects of the Value-Price Problem. International Journal of Political Economy, 21 (4), Winter, pp.9-66.

MAY (1948). Value and Price of Production: A Note on Winternitz's Solution. Economic Journal, December, pp.596-599.

MEDIO, Alfredo (1977). "Neoclassicals, Neo-Ricardians, and Marx". In: Schwartz (1977a).

MEEK, Ronald (1956a). Studies in the Labour Theory of Value. New York: Monthly Review Press.

----- (1956b). Some Notes on the 'Transformation Problem'. Economic Journal, 66, pp.94-107.

MENGER, Anton (1899). The Right to the Whole Produce of Labour, with an Introduction by H. S. Foxwell. London: Macmillan.

MESSORI, Marcelo (1984). Teoria del Valore Senza Merce-Denaro? Considerazioni Preliminari Sull'Analisi Monetaria di Marx. Quaderni di Storia dell'Economia Politica, 2 (1-2), pp.185-232.

MILONAKIS, Dimitris (1990a). Historical Aspects of the Law of Value and the Transition to Capitalism. PhD Thesis, University of London.

----- (1990b). Is There Not an 'Historical Transformation Problem'? Unpublished manuscript.

MIROWSKI, Philip (1989). More Heat than Light: Economics as Social Physics; Physics as Nature's Economics. Cambridge: Cambridge University Press.

MOHUN, Simon (1990). On Value and Price in Marxian Economics. PhD Thesis, University of London.

----- (1991). "The Context of the Transformation Problem". In: Dunne (1991).

----- (1993). A Re(in)statement of the Labour Theory of Value. Unpublished Manuscript.

MORISHIMA, Michio (1973). Marx's Economics - A Dual Theory of Value and Growth. Cambridge: Cambridge University Press.

----- (1978). S. Bowles and H. Gintis on the Marxian Theory of Value and Heterogeneous Labour. Cambridge Journal of Economics, 2 (3), September, pp.305-310.

MOSELEY, Fred (ed.) (1993a). Marx's Method in 'Capital': A Reexamination. Atlantic Highlands, N.J.: Humanities Press.

----- (1993b). "Marx's Logical Method and the 'Transformation Problem'". In: Moseley (1993a).

MURRAY, Patrick (1988). Marx's Theory of Scientific Knowledge. Atlantic Highlands, N.J.: Humanities Press.

----- (1993). "The Necessity of Money: How Hegel Helped Marx Surpass Ricardo's Theory of Value". In: Moseley (1993a).

NAPLES, Michele I. (1989). A Radical Economic Revision of the Transformation Problem. Review of Radical Political Economics, 21 (1-2), pp.137-158.

NEGRI, Antonio (1984). Marx Beyond Marx: Lessons on the Grundrisse. South Hadley, Mass.: Bergin & Garvey.

NELL, Edward J. (1967). Theories of Growth and Theories of Value. Economic Development and Cultural Change, 16, pp.15-26.

OAKLEY, Allen (1983). The Making of Marx's Critical Theory. London: Routledge & Kegan Paul.

----- (1984, 1985). Marx's Critique of Political Economy: Intellectual Sources and Evolution, 2 Vols. London: Routledge & Kegan Paul.

OKISHIO, Nobuo (1961). Technical Change and the Rate of Profit. Kobe University Economic Review, 7, pp.85-99.

----- (1974). Value and Production Price. Kobe University Economic Review, 20, pp.1-19.

PARIJS, Phillipe van (1979). From Contradiction to Catastrophe. New Left Review, 115, May-June, pp.87-96.

PASINETTI, Luigi (1977). Lectures on the Theory of Production. New York: Columbia University Press.

PERELMAN, Michael (1993). The Qualitative Side of Marx's Value Theory. Rethinking Marxism, 6 (1), Spring, pp.82-95.

PILLING, Geoffrey (1972). The Law of Value in Ricardo and Marx. Economy & Society, 1 (3), August, pp.281-307. Reprinted in Fine (1986a).

----- (1980). Marx's 'Capital': Philosophy and Political Economy. London: Routledge & Kegan Paul.

POLANYI, Karl (1944). The Great Transformation: The Political and Economic Origins of Our Time. Beacon Hill: Beacon Press.

POSTONE, Moishe (1993). Time, Labour and Social Domination: A Re-examination of Marx's Critical Theory. Cambridge: Cambridge University Press.

PROUDHON, Pierre-Joseph (1923). Systeme des Contradictions Economiques ou Philosophie de la Misere, 2 Vols. Paris: Marcel Riviere.

RAMOS-MARTINEZ, A. & RODRIGUEZ-HERRERA, A. (1994). The Transformation of Values into Prices of Production: A Different Reading of Marx's Text. Unpublished manuscript.

REUTEN, Geert (1993). "The Difficult Labor of a Theory of Social Value: Metaphors and Systematic Dialectics at the Beginning of Marx's 'Capital'". In: Moseley (1993a).

REUTEN, Geert & WILLIAMS, Michael (1989). Value-Form and the State: The Tendencies of Accumulation and the Determination of Economic Policy in Capitalist Society. London: Routledge.

RICARDO, David (1951 [1821]). Principles of Political Economy and Taxation. Cambridge: Cambridge University Press.

ROBERTS, Bruce (1987). Marx After Steedman: Separating Marxism from 'Surplus Theory'. Capital & Class, 32, Summer, pp.84-103.

ROBINSON, Joan (1966). An Essay on Marxian Economics. New York: St. Martin's Press.

----- (1973). Samuelson and Marx. Journal of Economic Literature, 11 (4), p.1367.

RODRIGUEZ-HERRERA, Adolfo Travail et Formation des Prix. These de Doctorat en Economie, Departement des Sciences Economiques, Universite Catholique de Louvain.

ROEMER, John E. (1979). Continuing Controversy on the Falling Rate of Profit: Fixed Capital and Other Issues. Cambridge Journal of Economics, 3, pp.379-398.

----- (ed.) (1986). Analytical Marxism. Cambridge: Cambridge University Press.

RONCAGLIA, Alessandro (1974). The Reduction of Complex Labour to Simple Labour. Bulletin of the Conference of Socialist Economists, Autumn.

ROSDOLSKY, Roman (1977 [1968]). The Making of Marx's 'Capital'. London: Pluto Press.

ROWTHORN, Bob (1974). Neo-Classicism, Neo-Ricardianism and Marxism. New Left Review, 86, July-August, pp.63-88. Reprinted in Rowthorn (1980a).

----- (1980a). Capitalism, Conflict and Inflation. London: Lawrence & Wishart.

----- (1980b). "Skilled Labour in the Marxist System." In: Rowthorn (1980a).

RUBIN, Isaak I. (1975 [1928]). Essays on Marx's Theory of Value. Montreal: Black Rose Books.

----- (1978 [1927]). Abstract Labour and Value in Marx's System. Capital & Class, Summer, pp.107-140.

----- (1979 [1929]). A History of Economic Thought. London: Pluto Press.

SAAD FILHO, Alfredo (1990). Contradicoes Mercantis no Processo de Acumulacao do Capital: O Exemplo da Inflacao. MSc. Dissertation, University of Brasilia.

----- (1993a). Labour, Money and 'Labour-Money': a Review of Marx's Critique of John Gray's Monetary Analysis. History of Political Economy, 25 (1), Spring, pp.65-84.

----- (1993b). A Note on Marx's Analysis of the Composition of Capital. Capital & Class, 50, Summer, pp.127-146.

SALAMA, Pierre (1975). Sur la Valeur. Paris: F. Maspero.

----- (1984). "Value and Price of Production: A Differential Approach". In: Mandel & Freeman (1984).

SAMUELSON, Paul M. (1957). Wages and Interest: A Modern Dissection of Marxian Economic Models. American Economic Review, 47 (6), December, pp.884-912.

----- (1971). Understanding the Marxian Notion of Exploitation: A Summary of the So-Called Transformation Problem Between Marxian Values and Competitive Prices. Journal of Economic Literature, 9 (2) pp.399-431.

----- (1973). Reply on Marxian Matters. Journal of Economic Literature, 11 (1), pp.64-68.

----- (1974). Insight and Detour in the Theory of Exploitation: A Reply to Baumol. Journal of Economic Literature, 12 (1), pp.62-70.

SANCHEZ VAZQUEZ, Adolfo (1977 [1966]). The Philosophy of Praxis. London: Merlin Press.

SCHWARTZ, Jesse G. (ed.) (1977a). The Subtle Anatomy of Capitalism. Santa Monica: Goodyear.

----- (1977b). "There is Nothing Simple about a Commodity". In: Schwartz (1977a).

SEKINE, Thomas (1975). Uno-Riron: A Japanese Contribution to Marxian Political Economy. Journal of Economic Literature, 13 (3), pp.847-77.

SETON, Francis (1957). The "Transformation Problem." Review of Economic Studies, 24, pp.149-160.

SHAIKH, Anwar (1973). Theories of Value and Theories of Distribution. PhD Thesis, Columbia University.

----- (1977). "Marx's Theory of Value and the 'Transformation Problem'." In: Schwartz (1977a).

----- (1978). "A History of Crisis Theories." In: URPE (1978).

----- (1981). "The Poverty of Algebra." In: Steedman (1981a).

----- (1982). Neo-Ricardian Economics: A Wealth of Algebra, a Poverty of Theory. Review of Radical Political Economics, 14 (2), pp.67-83.

----- (1984). "The Transformation from Marx to Sraffa." In: Mandel & Freeman (1984).

SHAMSAVARI, Ali (1987). A Critique of the Transformation Problem. Kingston Polytechnic Discussion Papers in Political Economy, no. 58.

----- (1991). Dialectic and Social Theory: The Logic of 'Capital'. Braunton: Merlin Press.

SHERMAN, Howard (1983). Realization Crisis Theory and the Labor Theory of Value. Science & Society, 47 (2), Summer, pp.205-213.

SLATER, Phil (ed.) (1980). Outlines of a Critique of Technology. Atlantic Highlands, N.J.: Humanities Press.

SMITH, Tony (1990). The Logic of Marx's 'Capital': Reply to Hegelian Criticisms. Albany: State of New York Press.

----- (1993a). Dialectical Social Theory and Its Critics. Albany: State University of New York Press.

----- (1993b). "Marx's 'Capital' and Hegelian Dialectical Logic". In: Moseley (1993a).

SRAFFA, Piero (1951). Preface of the Principles of Political Economy and Taxation, by David Ricardo. Cambridge: Cambridge University Press.

----- (1960). Production of Commodities By Means Of Commodities: Prelude to a Critique of Economic Theory. Cambridge: Cambridge University Press.

STEEDMAN, Ian (1977). Marx after Sraffa. London: New Left Books.

----- (ed.) (1981a). The Value Controversy. London: Verso.

----- (1981b). "Ricardo, Marx, Sraffa". In: Steedman (1981a).

SWEETZ, Paul M. (1949). "Editor's Introduction." In: Bohm-Bawerk (1949).

----- (1968 [1942]). The Theory of Capitalist Development. New York: Monthly Review Press.

SZUMSKI, Jerzy S. (1989) The Transformation Problem Solved? Cambridge Journal of Economics, 13, pp.431-452.

----- (1991). On Dumenil and Levy's Denial of The Existence of The So-Called Transformation Problem: A Reply. Cambridge Journal of Economics, 15 (3), September, pp.365-371.

TUGAN-BARANOWSKY, Mikhail I. (1905) Theoretische Grundlagen des Marxismus. Leipzig: Doucker & Humboldt.

URPE (ed.) (1978). US Capitalism in Crisis. New York: URPE.

VEGARA I CARRIO, Josep M. (1978). Economia Politica y Modelos Multisectoriales. Madrid: Editorial Tecnos.

VILAR, Pierre (1984 [1969]). A History of Gold and Money, 1450-1920. London: Verso.

VINER, Jacob (1965 [1937]). Studies in the Theory of International Trade. New York: A. M. Kelley.

VROEY, Michel de (1981). "Value, Production and Exchange". In: Steedman (1981a).

----- (1982). On the Obsolescence of the Marxian Theory of Value: a Critical Review. Capital & Class, 17, Summer, pp.34-59.

----- (1985): "La Theorie Marxiste de la Valeur, Version Travail Abstrait: Un Bilan Critique". In: Dostaler & Lagueux (1985).

WEEKS, John (1981). Capital and Exploitation. Princeton: Princeton University Press.

----- (1982). A Note on Underconsumptionist Theory and the Labor Theory of Value. Science & Society, 46 (1), Spring, pp.60-76.

----- (1983). On the Issue of Capitalist Circulation and the Concepts Appropriate to Its Analysis. Science & Society, 48 (2), Summer, pp.214-225.

----- (1990). Abstract Labor and Commodity Production. Research in Political Economy, 12, pp.3-19.

WINTERNITZ, J. (1948). Values and Prices: A Solution to the So-Called Transformation Problem. Economic Journal 58 (2), pp.276-280.

WOLFF, Robert P. (1984). Understanding Marx: A Reconstruction and Critique of 'Capital'. Princeton: Princeton University Press.

WOLFF, R., ROBERTS, B. & CALLARI, A. (1982). Marx's (not Ricardo's) Transformation Problem: A Radical Reconceptualization. History of Political Economy, 14 (4), pp.564-582.

----- (1984a). Unsnarling the Tangle: A Rejoinder. History of Political Economy, 16 (3), pp.431-436.

----- (1984b). A Marxian Alternative to the Traditional 'Transformation Problem'. Review of Radical Political Economics, 16 (2-3), pp.115-135.

YAFFE, David (1974). Value and Price in Marx's 'Capital.' Revolutionary Communist, 1, May, pp.31-49.

ZELENY, Jindrich (1980 [1972]). The Logic of Marx. Oxford: Basil Blackwell.