

Towards a critical materialist pedagogy: Marx and Dewey

by Fred Harris

A Thesis

Submitted to the Faculty of Graduate Studies

in Partial Fulfillment of the Requirements

for the Degree of

MASTER OF EDUCATION

**Department of Educational Administration, Foundations and Psychology
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**Towards a Critical Materialist Pedagogy:
Marx and Dewey**

BY

Fred Harris

**A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University
of Manitoba in partial fulfillment of the requirements of the degree
of
Master of Education**

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Abstract

This thesis analyses Karl Marx's theory with that of John Dewey in order to justify the proposition that a synthesis of the two theories could form the ground for a critical materialist pedagogy. The common materialist base of their theories is described. A look at the curriculum designed by Dewey for the Chicago laboratory school verifies the basic consistency of the two theories at the methodological level of the unity of the logical and historical methods and at the substantive level in terms of the importance of the material dependence of human beings on nature in addressing the character of human life and human problems. It is concluded that Dewey's curriculum forms a rich basis for developing a materialist curriculum that goes beyond Marx's writings. At the same time, the divergences between Marx and Dewey become evident because of Dewey's emphasis only on technological development whereas Marx linked technological development to the development of the capacities of some individuals at the expense of others. It is concluded that Marx, via his dual theory of labour, developed a critique of capital which forms a rich basis for developing a critical curriculum that goes beyond Dewey's writings. A synthesis of the two theories is briefly provided in the context of developing a critical materialist pedagogy.

Acknowledgements

I would like to thank Dr. Michael Feld, Dr. Romulo Magsino and Dr. Rosa Bruno-Jofré for being members of my thesis committee. I would particularly like to thank Dr. Rosa Bruno-Jofré, as my advisor, for her advice and encouragement throughout the preparation of the thesis.

I dedicate this thesis, inadequate though it undoubtedly is, to my daughter, Francesca Alexandra Harris. May she bear the fruits of the germs contained in the ideas herein expressed.

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Introduction

A. Purpose of the study, research question and structure

A parent or teacher who wishes to develop the critical capacities of a child must inevitably ask herself or himself how to do so. Evidently the problem cannot be an academic exercise since the adult needs to relate to children at a personal and practical level in accordance with some definite criteria. However, writings by critical pedagogues do not seem to address how an adult is to develop systematically the critical capacities of children on a materialist ground.

This thesis addresses that issue. Its aim is to analyze the theories of Karl Marx and John Dewey to determine what they can contribute to a critical materialist pedagogy. To achieve this goal, it will be necessary to explore the extent to which John Dewey's philosophy of education is compatible with Karl Marx's theory of capital and why they are compatible or incompatible. One of its main theses is that their philosophies of human nature are broadly compatible, and that Dewey's practical implementation of his philosophy in an educational setting provides a general materialist framework that critical pedagogues in general and Marxists in particular would do well to use for their own ends. A second thesis is that the Deweyan philosophy of human nature, despite its compatibility with Marxian theory, falters when it comes to an analysis of the specific nature of capital. Despite the complimentary nature of Marx's and Dewey's materialist theories, Marx's dual theory of labour is what ultimately distinguishes Marxian theory from Deweyan theory. Consequently, critical pedagogues need to adapt Dewey's philosophy and practice

of education rather than accept it tout court.

To show that a synthesis of Marx and Dewey would provide a foundation for a critical materialist pedagogy, chapter one first draws a parallel between Marx's theory of concrete labour and Dewey's naturalistic philosophy and illustrates their compatibility in this regard. Marx's and Dewey's theories concern the human species' relation to nature and the ultimate dependence of human consciousness on that relation. For both authors, the development of the human species and its consciousness depends on the specific relation to nature.

Chapter two explores Dewey's philosophy of education as it relates to what has come to be known as the Dewey school, which existed from 1896 until 1904 under the directorship of Dewey. Some of the theoretical underpinnings of the school, as well as its practices, are outlined for children up to the equivalent of grade three. The description of school activities up to that grade is meant to provide indirect evidence of the compatibility of the Marxian theory of concrete labour and Deweyan theory of natural human experience. As well as providing indirect confirmation of the compatibility of the two theories in this respect, the outline of the educational practices in the school provides sufficient detail to provide illustrative material for some of the differences between the two theories in the next chapter.

Chapter three looks at these differences. The difference between Marx's and Dewey's methodologies in analyzing capital is sketched. This difference is then elaborated by looking at Marx's critique of capital in detail and some of Dewey's criticisms of capitalist society. The specific nature of capital according to Marx's theory is

then adumbrated. In particular, his dual theory of concrete and abstract labour is described and its epistemological implications explored in terms of the fetishism of commodities and capital. Marx's treatment of technology is then linked to his dual theory of labour or the dual use of things in a capitalist society. The last section on Marx looks at the Marxian conception of community and its relation to crisis theory.

Dewey's critique of capitalist society is described in terms of his theory of a cultural lag and his technological determinism. These two determinants of his critique are used to explain his normative theory of the lost community. A closer look at Dewey's technological determinism then provides part of the explanation for his inadequate conception of the nature of capital and his opposition to class struggle. A more detailed look at his normative theory of the community links his bias toward cooperation to his idealist theory of the community. His abstract theory of cooperation provides the other part of the explanation for Dewey's inadequate conception of capital and his opposition to class struggle. The last section takes issue with what may be termed abstract cooperation implicit in Dewey's view--a dialogue between all on equal terms.

Some may query why the analysis in the section in chapter three on Marx is so extensive. The reason is that it attempts to identify certain problems peculiar to the nature of capitalist society. Although Dewey's approach was certainly different than that of Marx, he would not object to an attempt at determining the nature of problems associated with current society. For Dewey, as well as Marx, if philosophy is to be more than scholasticism, it needs to address the pressing problems of human beings in the present. This practical nature of philosophy applies as well to the philosophy of education. If the

philosophy of education is to be of practical value, it is necessary to determine the nature of the problems which human beings face in present society. To achieve that goal, it is necessary to analyse the specific nature of the society in which one lives: "All this reinforces the statement which opens this chapter: The conception of education as a social process and function has no definite meaning until we define the kind of society we have in mind" (Dewey, 1916/1966, p. 97). It will be shown in chapter three that Marx's analysis of capital, grounded in his dual theory of labour, pinpoints problems (such as commodity fetishism) which Dewey's theory does not address. Since the problems identified differ from those identified by Dewey, the solutions offered--in particular the critical nature of the curriculum--will also differ. To provide a more adequate critical materialist pedagogy which addresses the problems associated with capitalist society, consequently, it is necessary to dwell on Marx's critical analysis of capital.

The final chapter provides just a few examples of how Dewey's philosophy of education could be synthesized with Marxian economics to provide a critical materialist education for children.

B. Significance of the study

There seems to be a proliferation of critical pedagogies. The list of theories include those of Paulo Freire, Ira Shore, Peter McClaren, Michael Apple and Henri Giroux. At best, they seem to focus on what teachers ought not to do than to offer any positive curriculum. There is much emphasis on criticism but little long-term guidance concerning what critical pedagogues are to teach in some kind of coherent order. A

lacuna exists in the radical school. Dewey's theory and practice, however, may fill that gap. They address the dependence of human beings on the natural world, a dependence which Marx constantly stressed in his writings. Much of the content of Dewey's educational writings, far from contradicting Marx's writings, support them in a concrete, detailed and practical manner at the micro level of the curriculum and its implementation. That this curriculum has never been implemented on a large scale in the capitalist West is hardly testimony, of course, to its incompatibility with Marxism. Quite to the contrary. The Deweyan curriculum has many features which oppose a capitalist regime of schooling. For example, the divorce between intellectual and manual labour, with the emphasis of the former at the expense of the latter, was anathema to the laboratory school. Its emphasis on the dependence of human beings on nature also contradicts the extreme emphasis on symbolic learning characteristic of idealist education.

Although there have been a few comparisons of their theories, none specifically detail whether Dewey's philosophy of education and its implementation would be useful for critical pedagogues. The work closest to that purpose is Richard Brosio's A radical democratic critique of capitalist education (1994a), but Brosio, in that work, is less concerned with an analysis of Marx's and Dewey's theories and more concerned with a critique of the present school system and its supporters. Brosio, however, does contend that Marxists would be well advised to incorporate Dewey's philosophy of education into their own theory. This thesis thus addresses Brosio's suggestion and aims to compliment his work.

C. Methodology

The thesis is a comparison of Marx's and Dewey's theories, not that of those who attempted to adapt their theories to changing realities either theoretically or practically. To justify my interpretation, therefore, I quote Dewey relatively frequently, but especially Marx. There are few authors, whether from the left or the right, who view Marx's dual theory of labour to be central to Marxian economics or indeed are aware of its existence. However, in order not to burden the text with a mass of quotes, I have placed most quotes of Marx in the Appendix. The convention adopted follows Meghnad Desai's use of an appendix in his work Marxian economics (1979): the use of an Arabic number in curly brackets in the text indicates the quote to which I am referring in the Appendix.

I also quote Marx extensively in order to forestall distortions of Marxian theory. It seems that the texts of Marx are rarely used as a means to comprehend and criticize modern capitalist society. After all, it is said, Marx's writings are almost a century and a half old. Modern capitalism has changed enormously. Such reasoning is legitimate if the researcher has indeed critically grasped the current form of capital. However, such reasoning may also express a lack of effort to come to grips with Marx's own theory. To denigrate references to Marx's critique of capital on the basis that Marx was writing in the nineteenth century, if not ground in a thorough understanding of his theory of capital, is merely to substitute one's own definition of capital. The researcher is not engaged in a dialogue with the text, to find out what she can learn from it; rather, she is engaged in monologue. Moreover, one could use such reasoning to justify never providing a close reading of Aristotle's or Einstein's theory. After all, the society of today is quite different

from that of Aristotle, and the universe has certainly changed since Einstein died. Mere change does not in itself justify the presumption that one's own theory is superior to that of earlier writers.

Dewey seems to have suffered the same fate as that of Marx; many who refer to Dewey have often done so by using secondary sources. Dewey's own views have often been buried beneath the myth of John Dewey. It is Dewey's works themselves which form the basis for an understanding of his theory in this thesis. One apparent exception is the work written by Katherine Camp Mayhew and Anna Camp Edwards, The Dewey School: The Laboratory School of the University of Chicago, 1896-1903 (1936/1966). Dewey wrote an introduction to the work and a few other sections specifically for the book. He himself endorsed it as an accurate account of the laboratory school. For the purposes of this thesis, it is considered an original writing.

D. Review of the literature

As mentioned above, there is no analysis of Marx's and Dewey's theories in relation to the problem of educating children in a critical materialist manner. The exchange between Richard Brosio (1994b) and Frank Margonis (1994) in the journal Philosophy of Education is instructive in this regard. Brosio's article "Dewey as the schoolmaster for Marx's radical democracy" argues for the appropriation of Deweyan theory by Marxists and of Marxian theory by Deweyists. Dewey lacked an agency which would carry forward his project of a democratic community at the macro level. Marx, similarly, lacked a detailed program for democratic educational change at the micro level.

A unity of these two models would compliment each other. Brosio does not, however, address the issue of which aspects of Dewey's philosophy could be incorporated into Marxian teaching.

Although sympathetic to Brosio's call for a synthesis of the two views, Margonis' article "John Dewey: Organic intellectual of the middle class?" (1994) finds Dewey's use of what Margonis calls vocational education to have been turned to the advantage of middle-class interests. Margonis, however, seems to equate Dewey's emphasis on manual labour with vocational training. Dewey himself distinguished between manual training and occupations, which formed a key component of the laboratory school. Dewey urged schools to adopt the latter, not the former. Margonis does not analyze whether the way in which occupations were used in the laboratory school are compatible with Marx's theory. On the other hand, Brosio notes that Dewey excluded class analysis from his philosophy of education. Margonis queries whether this exclusion taints Dewey's philosophy of education, making it inappropriate for Marxists or other radicals to adopt. Margonis does not pursue this issue; it will be addressed in chapters three and four.

Apart from these two articles, there is a collection of articles in the anthology Context over foundations: Dewey and Marx (1988). In general, none of the authors delve into an analysis of Dewey and Marx based on Marx's dual theory of labour and Dewey's philosophy and practice of education. In "From 'Individual' to 'Subject': Marx and Dewey on the Person," Colapietro notes several intersecting themes of the two authors. For our purposes, though, his identification of the two needs to be challenged. Although it will be shown that Colapietro accurately portrays both as viewing the past as a unity of biological

and historical needs, he provides no grounds for his contention that Dewey's view of the community and Marx's view of the nature of the life of the human species to be similar. In chapter three it will be shown that Marx and Dewey had different views of the community. Colapietro also mentions in passing that Dewey would have rejected Marx's distinction between production and circulation (general relations of exchange), with the former reflecting essential relations and the latter phenomenal forms. Chapter three elaborates on Colapietro's remark.

Like Colapietro, McBride, in his "Science, psychology and human values in the context of Dewey's critique of Marx," merely lists areas where Dewey would disagree with Marx's conception of science: the distinction between the method of presentation and the method of inquiry, and dialectics as a method of determining the contradictions of an object of study. The issue of methodology is addressed in chapters two and three, showing where Dewey and Marx converged and where they diverged. In the former chapter a parallel will be drawn between Marx's discussion of the order of presentation of the economic categories and Dewey's discussion of the relation between organized adult experience, especially in the form of science, and childhood experience. Both, in their own ways, refused to identify the historical method with the logical method. This similarity, however, also divides them when it comes to determining the nature of capital since Dewey follows the historical method in determining the nature of present society whereas Marx follows the logical method. Chapter three addresses this issue by contrasting Marx's theories of abstract labour, of fetishism and his theory of the alienated community in the form of a crisis with Dewey's theory of a cultural lag and the lack of a

community in modern technological conditions.

Gavin's "Text, context, and the existential limit: A Jamesian strain in Marx and Dewey" argues that both Marx and Dewey had faith, the former in the proletariat, the latter in the scientific method. Even assuming that they both relied on faith, since the scientific method, according to Gavin, is supposed to operate on a Deweyan consensual basis, and reliance on the proletariat is supposed to operate on a Marxian conflictive basis, Gavin leaves the reader with the question of why each author then relied on a specific form of faith.

Brodsky, in his "Politics, culture and society in Marx and Dewey" paints some broad parallels between Marx and Dewey. He above all seeks to demonstrate that Dewey's criticisms of capitalism are profound and compatible with those of Marx. Both advocated an end to the divorce between manual and intellectual labour, for example. Nevertheless, Brodsky does not address this parallel in relation to Dewey's philosophy and practice of education. How Dewey attempted to bridge this gap in educational terms will be seen in chapter two. Brodsky also contends that both viewed economics to be a major determinant in human life, and Dewey even went so far as to indicate that it was the determinant in the modern industrial world. However, Brodsky does not analyze what Dewey meant by the term "economic". He also merely registers--without investigating--Dewey's association of an extremely unequal distribution of wealth, unemployment, the regime of property and the subordination of the economy to profit with pre-scientific and pre-industrial feudal structures. This question will also be addressed in chapter three.

Brodsky finds the major point of divergence between the two to be that Marx

posited class and class struggle to be inevitable whereas Dewey posited cooperation as more conducive to progress and class struggle as dogma. This difference certainly should give one pause for thought. If the solutions to the problems of capitalism are so antithetical, then the way in which capitalism is defined is also probably antithetical. This question is addressed in chapter three.

Campbell's article "Dewey's understanding of Marx and Marxism" reinforces Brodsky's judgement that Dewey was a keen critic of capitalism. Dewey criticized capitalism because it prevented coordinated planning, subordinated science and technology to the pursuit of profit, produced unemployment, chained workers to meaningless jobs and inhibited the practice of democracy in daily life. However, according to Campbell, Dewey saw these as particular problems of a specific form of capitalism rather than capitalism as such. It will, however, be argued that according to Dewey's definition of capitalism, the latter as such was an anachronism. Moreover, Campbell's observation that Dewey conceived the capitalist class structure as a system of strata with overlapping interdependence which entails a potentially common interest rather than antagonistic interests is looked at in the third chapter from the point of view of the distinct nature of capitalist society.

According to Campbell, the conflict between Dewey and Marxists ultimately reduced itself to "whether institutional lag or deliberate exploitation was the primary source of our social problems" (1988, p. 141). Campbell here pinpoints a problem which will be addressed in the third chapter. Dewey's notion of an institutional lag will be broached in the third chapter. Ultimately, however, Campbell himself recognizes that his

analysis is more directed toward Dewey and Marxists than toward Dewey and Marx.

Manicas' article "Philosophy and politics: A historical approach to Marx and Dewey" concentrates on the meaning of democracy for Marx and Dewey. Both viewed political democracy as insufficient for the creation of a democratic community. Dewey increasingly called for a radical democratization of human life, but he still rejected class struggle because he did not consider the American working class to be very radical. Their class consciousness had been fragmented by an atomized environment.

Manicas contrasts Dewey's argument with that of Marx. He distinguishes between Marx's concept of the proletarian class from the empirical concept of the working class in the sense that the former presupposes only the relation between capital and labour whereas the latter is the existence of workers in concrete societies. Manicas concludes that with the fragmentation of the working class, social forces other than workers could form the locus of a democratic program akin to that of Dewey. Democratization of the economy would resolve "the contradiction between socialized production and private appropriation" (1988, p. 166). This way of formulating the problem assumes that the form of production contradicts the form of distribution. Unfortunately, Manicas does not pursue the question of whether this characterization of the contradiction of the economy accurately portrays Marx's dual theory of labour. Manicas also does not connect up his observation that Dewey tended toward technological determinism with Dewey's unwarranted optimism concerning the power of creative intelligence when it has no institutional form.

In "The politics after deconstructionism: Rorty, Dewey and Marx," Damico, as the

title of his article suggests, is more concerned with distinguishing Dewey's and Marx's theories from Richard Rorty's deconstructionism than with providing a more detailed analysis of the theories of Dewey and Marx. Nevertheless, he does bring out some points that will be elucidated in what follows. Damico, like Colapietro, draws a parallel between Dewey's theory of experience as an interaction between socialized individuals acting in a specific environment and Marx's theory of human praxis. Damico's reference to Marx's positing of thought and reason as a predicate of society, so that consciousness is a function of society, finds echoes in Dewey's works and in his educational practices which are brought out in my exposition of the Dewey school in chapter two. However, Damico contends that Dewey's operationalization of thought as a function of problem solving differs substantially from its operationalization in terms of revolution; he thus implies that problem solving and revolution are mutually exclusive. It could, however, be said that Dewey operationalized thought as a function of cooperative problem solving whereas Marx operationalized thought as a function of conflictive problem solving (solving a problem through class struggle). In any case, Damico does not endeavour to explain why Dewey and Marx operationalized their apparently similar theories in so decidedly different ways. Moreover, since Marx's theory of praxis captures Marx's theory of concrete labour but not his theory of abstract labour, the parallel is misleading. Chapters one and two are meant to show the usefulness of this parallel in relation to education; chapter three is meant to show its limitations especially in relation to Marxian economics and the dual theory of labour.

Damico does point out that science as a method for Dewey exposed what was

anachronistic in current experience and what was emerging as new conditions for human life. Marx had a similar conception of the function of science which, however, he operationalized in a different manner. Damico also finds that Dewey's politics requires the creation of conditions which "first, make transparent to those implicated in some situation their collective identity and, second, indicate how best to organize their response" (1988, p. 191). The problem with this formulation of Dewey's philosophy is that it presupposes that Dewey considered there to be a collective identity which then must be discovered. Such a view is closer to Marx's, it will be argued, rather than that of Dewey. The latter considered the community something which no longer exists in present conditions, but must be created. By contrast, Marx, in his later works at least, generally treated the community or society as a real, though alienated force.

Damico ends his essay with the claim that the major difference between Dewey and Marx can be described by "dislocations within an interactionist model of experience versus Marx' conception of conflict as alienation and class division" (1988, p. 200). The third chapter addresses some of those differences.

Apart from the articles in the anthology, there are only a couple of other works which bare mention. Bernstein, in his Praxis and action: Contemporary philosophies of human activity (1971) has separate chapters on Marx, on the one hand, and Pierce and Dewey on the other. Bernstein does not really link the two theories. As he himself remarks, the purpose of his work is to understand certain authors in relation to the similar themes of praxis and action rather than to compare them.

Novack's Pragmatism versus Marxism: An appraisal of John Dewey's philosophy

(1975) analyzes Marxism and Dewey and not Marx and Dewey. Although he appreciates Dewey's innovative philosophy of education, Novack does not address to what extent it is compatible with Marx's theory. Nowhere does he demonstrate an awareness of Marx's dual theory of labour. His comparison is thus of limited value in determining their incompatibility and for determining a critical materialist pedagogy. He also relies on the natural sciences rather than on the social sciences for his critique of Dewey. Since Marx wrote his major work on the nature of capital--a decidedly social phenomenon--Novack excludes Marx's specific theory from consideration in his comparison.

Chapter 1. Marx's and Dewey's materialist theories of human nature and human development

A. Marx and Dewey as materialists

Both Dewey and Marx viewed human beings as natural beings whose nature is both biological and therefore relatively constant and social and therefore relatively variable. The biological aspect of human beings, although subject to change in the long run, constitutes a relatively stable base when compared to its social aspect, which changes as a result of human praxis. Colapietro notes this parallel between Marx's theory of praxis (the activity whereby humans appropriate nature for the satisfaction of their needs) and "Dewey's theory of experience (the transaction between the organism and the environment" (1988, p. 30). What he refers to here as Marx's theory of praxis is, in Marx's Capital, none other than his theory of the concrete or useful labour process: the interface between human beings and nature in the process of reproduction of human life {1a, 1b}.

Concrete labour is a constant because it is a necessary condition of all human life; the form of that constant can, however, change. Murray (1988) differentiates these two aspects of human reality with the terms "general abstraction" and "determinate abstraction". The former characterizes necessary conditions for human life; the latter is the specific forms which themselves may change. Dewey also combined general and determinate abstractions in his characterization of human life:

. . . "the actions and passions" of individual men are in the concrete what they are, their beliefs and purposes included, because of the social medium in which they live; that they are influenced throughout by contemporary

and transmitted culture, whether in conformity or protest. What is generic and the same everywhere is at best the organic structure of man, his biological make-up. While it is evidently important to take this into account, it is also evident that none of the distinctive features of human association can be deduced from it. (1927/1946, p. 195)

Both theories presuppose general abstractions and determinate abstractions. Determinate abstractions express the relational and historical nature of being human. Within limits-- which must never be forgotten--humans are what they are because of their relations, but the latter change over time because of altered means of satisfying basic needs and the emergence of new needs on the foundation of the evolving relations associated with the mode of living required to satisfy the basic needs. Human beings throughout prehistory and history have had certain basic needs (such as food, clothing and shelter), and these needs express the dependence of human beings on other parts of nature for their continued physical existence. Physical dependence on other parts of nature simultaneously entails social dependence. These two forms of dependence are independent of the wills of individuals (Gavin, 1988).

The existence of human beings, which entails needs posited by nature that are independent of human will, the development of human needs in the process of meeting the basic needs, and the reproduction of the species physically are general abstractions which apply throughout human history. Human life must first of all meet its basic needs, and the latter are material needs which permit it to continue to exist {2}.

Evidence for Dewey's agreement with Marx on this subject is incarnated in the Dewey or laboratory school, in which Dewey was the director from 1896 until 1904. A more detailed description of this school will be outlined below, but the issue of Dewey's

operationalization of his philosophy of education has not received the attention it deserves. In the Dewey school, the basic needs of clothing, shelter and food formed a key organizing element of the school. This fact, despite Gavin's claim that all propositions are provisional for Dewey, indicates that Dewey was just as foundationalist as Marx in positing certain fundamental presuppositions of human life. In practice Dewey, like Marx, treated certain aspects of human life as basic and unquestionable foundations for human life, foundations which provided continuity amongst change. The Dewey school incarnated this foundational aspect of human life amidst its changing forms.

Being human for both Marx and Dewey was thus a function of both our biological nature (the need for certain basic things) and our historical nature (how we have addressed those needs through history). At any moment in time we have certain means which are a result of past activity or labour of others. Those means help shape what we are because they engage us in certain activities which are necessary if we are to reproduce ourselves as beings of nature {3}. Human beings have a determinate relation to the rest of nature. This determinate relation depends on the production and use of certain tools (and, later, machines), which in turn provides a material structure for the material reproduction of human life. This material structure is simultaneously a social relation between human beings.

Human nature, for both Dewey and Marx, had certain basic needs which must be satisfied, but the process of satisfying them was itself part of the development of human nature because the process itself led to a change in the form of satisfying them. There was both continuity and change in being human.

B. The importance of production, technology and the use of produced objects

The emphasis on the satisfaction of basic needs by both authors leads to a related point that both authors shared: the importance of meeting those needs through production and technology and the relevance of the latter for the development of the capacities of individuals and of the species--the essence of the educational process. Thus both emphasized the importance of the evolution of the material production process in general in the advancement of the possibilities of human nature. Dewey, for instance, contemplated in an ideal school the existence of an industrial museum, with samples of diverse materials shown in various stages of production (1900/1976a). Parallel to the comparison of the materials, the tools used in their production would be arranged from the simplest to the most complex.

The Dewey school emphasized that the learning process involved the reproduction of the material process of satisfying basic needs through the role playing of occupations over time. In the school, the students reproduced the material structure of former societies through role playing of occupations tied to the basic needs. The impact of the use of tools was also discussed and reproduced, imaginatively and frequently materially. Marx, similarly, considered the evolution of the means of production to be a key in the progressive development of the potential of human nature {4}.

The organizational principles of the Dewey school seem quite consistent with Marx's emphasis on material production, the concrete labour process and the constant necessity for human connection to the natural world, especially through the development

of technology. For Marx, it is in and through human beings' active relation to nature through the development of the means of production that they have developed their own nature. They can do more things as a consequence and relate more things to each other. Their relations to each other become more complex. They become conscious of a wider world and can use that world to realize their purposes. To realize their purposes, however, instruments of labour (tools and machines) are required. These instruments of labour provide a window into the larger world of nature both because they connect human activity to the natural world in practical ways and mediate social relations, permitting coordination of activities through a division of labour reflected in the differentiation of the function of different tools {5a, 5b}. In the Dewey school, students reproduced the material and social life characteristic of the Stone Age and the Iron Age, both imaginatively and materially (Mayhew & Edwards, 1936/1966). Both Marxian and Deweyan theories therefore had a definite materialist bent.

Both were also in agreement over the importance of the historical development of production for the general learning process. For Dewey, human history is in the first instance the process through which the human species internalizes the forces of nature as part of the human environment through the creation and use of objects to capture those forces. By internalizing natural forces by means of the production and use of objects, the variety of socially useful objects which serve as collective means expands considerably (Dewey, 1916/1966). This development is cumulative so that modern society includes not just the knowledge base of the present generation but also the accumulated knowledge base or labour of past generations:

Every domesticated plant and animal, every tool, every utensil, every appliance, every manufactured article, every aesthetic decoration, every work of art means a transformation of conditions once hostile or indifferent to characteristic human activities into friendly and favouring conditions. (Dewey, 1916/1966, p. 37)

As Dewey put it, the objects are incarnated or materialized knowledge:

A body of knowledge is transmitted, the legitimacy of which is guaranteed by the fact that the physical equipment in which it is incarnated leads to results which square with the other facts of nature. (1916/1966, p. 37)

Marx would undoubtedly have agreed with him {6}.

Some examples of what Dewey and Marx meant by materialized knowledge should clarify this concept. A square weaving loom, which has a determinate material form, is itself a solution to a particular problem: how to weave yarn into the specific form of cloth, which in turn can be used to produce clothing. The weft or horizontal threads are drawn through the warp or vertical threads over and under by hand or by some form of needle or hook. A binary pattern of alternating weft over and under the warp threads is created.

A more complicated (but nevertheless still quite simple) weaving loom based on heddles serves the same purpose of aiding in the production of cloth (and hence clothing). The warp threads pass through the heddle plate which has alternate holes and slots. When the heddle shaft is turned toward the warp beam (the end where the warp is wound), the warp threads in the holes in the heddle plate are pushed up; when the heddle shaft is turned in the opposite direction, they are pushed down (the warp threads in the slots remain relatively stationary). Physical forces and a pulley-like arrangement are also used to lift the alternate warp threads up or to push them down by converting rotary motion

into linear motion. In conjunction with the relatively elastic property of cotton or woolen yarn, the pulley-like system, and the binary pattern of the heddle plate, a shed or space is formed, through which the shuttle passes. By passing the shuttle once through the alternate threads created by the shed, a binary pattern of weft thread over and under the warp thread is automatically created. The production of the heddle loom thus involves the incorporation of many historical solutions to particular problems, and the user of the loom, if properly taught in the principles of its construction and use--part of the reconstruction of experience in Deweyan terms--could come to understand her own activity (and the concomitant use of things) in a more synthetic or holistic manner.

The heddle loom, therefore, implicitly incorporates a synthesis of physical forces, a property of cotton or woolen yarn and the binary principle. There is an implicit synthesis rather than an explicit synthesis because human beings can be trained to use a loom without ever understanding the basic principles by which it operates.

For an explicit synthesis to emerge in the weaver, an understanding of the different elements and their unified operation is necessary. An understanding of these different elements can then be applied to different contexts (a process of adaptive learning). Thus, the binary system used in weaving to control the raising and lowering of threads was used in combination with a card system with holes in the cards in order to produce complicated weaving patterns without the weaver having to intervene directly in the selection of the threads once the system was set up; the processing of the raw material became relatively independent of direct human labour. These binary cards were later applied as input cards by Charles Babbage and then Herman Hollerith in the construction

of computers (Williams, 1982).

Even the aim of weaving is rich in potential learning possibilities. Most children wear clothing, but their understanding of the reason for this daily experience needs to be explicitly brought out (the reconstruction of ordinary experience). If the purpose of weaving is linked to the production of clothing, the evolution of the human species becomes related to the production and use of a loom. Humans need to produce clothing, and the loom indirectly has satisfied that need for millennia. Through the study of evolution, children could link their production and use of looms to the need of the human species for clothing because of its evolutionary past. Sometime in the past, hominids lost their long coats of hair (although human beings still possess approximately the same number of hairs as apes, the length of their body hair has decreased considerably) so that clothing (like the use of fire) addressed that need.

The loom could also be linked to the development of agriculture since the cotton (or woolen) yarn requires the domestication of plants or sheep. Moreover, the production and use of the loom could be linked to the industrial revolution since weaving was the second textile industry to be mechanized (after spinning).

The heddle loom, then, contains both materialized (already realized) solutions to problems encountered by human beings in their daily lives, and it also contains possibilities for the solution of future problems (immanent solutions). The production and use of the loom can therefore be linked to common, everyday experiences. These experiences then gain in meaning by being reproduced through their conditions of existence and being linked explicitly to the purposes which they serve.

Materially produced objects such as looms, then, constitute a rich source for exploring the interface between the human and nonhuman aspects of nature. Produced objects have embodied in their form a thought process which addresses specific problems faced by humans. They are materialized forms of knowledge which internalize natural forces, frequently in a ingenious and almost invariably synthetic fashion.

Marx, like Dewey, posited the development of the human species in terms of the internalization of natural forces through the production and use of concrete means of production. In The German Ideology, for instance, Marx considered that the human species distinguished itself from other animals on a practical (developmental) level when it began to produce its means of subsistence {7}. Before the agricultural revolution, hunting and gathering formed the social mode of appropriating the nonhuman natural world. In hunting and gathering, the supply of the means of subsistence was not internally controlled by society; the supply was not functionally dependent on the activity of human beings to any significant degree except as a negative force (an exhaustion of an adequate supply of animals to hunt, for example). With agriculture--and thus the production and use of specific tools and associated forms of knowledge--supply became internalized so that means of subsistence became dependent on human labour. Human population could and did expand rapidly as a consequence (Derry & Williams, 1960).

C. Functionalism in Dewey and Marx

Dewey's theory of learning in the widest sense--including language learning--is tied to the use of things in a social or shared context. Learning is initially the acquisition

of shared meanings or the understanding of the functional social use of material objects which have a definite material form. Therefore, learning, or the acquisition of shared meanings, occurs through the active participation (use) by people of their social environment, which always includes materially produced objects. A person learns the use-value or social meaning of a thing by internalizing its role or function in other humans' use of the thing and acting on the basis of that knowledge of the thing's social significance. For example, a hat is a hat only by having a specific form and being used in a specific manner. A person learns the nature of an object such as a hat by sharing in the meaning of the hat: its use (value) by others in a specific social context:

It would probably be admitted with little hesitation that a child gets the idea of, say, a hat by using it as other persons do; by covering the head with it, giving it to others to wear, having it put on by others when going out, etc. . . . When the mother is taking the infant out of doors, she says "hat" as she puts something on the baby's head. Being taken out becomes an interest to the child; mother and child not only go out with each other physically, but both are concerned in the going out; they enjoy it in common. By conjunction with the other factors in activity the sound "hat" soon gets the same meaning for the child that it has for the parent; it becomes a sign of the activity into which it enters. The bare fact that language consists of sounds which are mutually intelligible is enough of itself to show its meaning depends upon connection with a shared experience. (Dewey, 1916/1966, pp. 14-15)

Of course, the particular material form itself influences the social functionality of an object; hats are generally useless as cooking utensils and, in general, are not so used because of the shared experience or common use-value of the hat.

Similarly, for Marx, things had a use-value only because they could be used in concrete, determinate ways. Their social use-value or significance was related to both the ends to which they could contribute and to their specific material form. In other words,

for Marx the use-value of a material object was dependent on the material form of the object and in part on its functional use or the concrete purpose which it serves {8}.

Marx also had a functional theory of analysis which paralleled Dewey's functional theory of learning. He frequently distinguished concepts because of their function in a process. His distinction between constant capital (c) and variable capital (v) rested on their different functions in contributing to the total value of a commodity (1867/1977a).

This distinction between c and v bears on the possible role each has as a solution to the problem of the origin of profit, an origin which cannot be determined solely in terms of exchange or circulation since the latter, in general, presupposes equal exchange. All means of production purchased have their value transferred to the output without any change in their value. Labour power, however, may produce more value than it itself costs; hence, Marx called it variable capital because of its different function in the creation of the total value of a commodity.

Similarly, his distinction between fixed capital and circulating capital rested on the different functions each form of capital had in relation to circulation (Marx, 1884/1977b). Both labour and raw materials, materially, were entirely consumed in the production process; the resulting value from these circulating parts of capital circulated as a whole rather than piecemeal or as part of a whole. By contrast, fixed capital (such as machinery) was consumed piece-meal materially over a number of years. Its value was consequently transferred only piece-meal and circulated as such until its entire use-value no longer functioned adequately according to prevailing social conditions as a use-value. Marx, then, assigned different terms to the same thing (such as constant capital and fixed

capital to machinery) depending on its function in a determinate processes. The same thing may simultaneously have different functions depending on its relation to different processes.

Both Dewey and Marx, therefore, were in general agreement over the importance of coming to understand the function of an object in its use by human beings. The educational process, in the widest sense, involves human beings coming to understand, at a theoretical and practical level, the nature of an object by understanding its function in a process.

D. Concentrated learning through the use of produced material things

Another interesting parallel between the two theorists consists of their view that the appropriation of use-values does not depend on the quantity of labour required to produce them. If it were not, limited learning would occur:

Because the activities of children today are controlled by these selected and charged stimuli [domesticated plants and animals and manufactured articles], children are able to traverse in a short lifetime what the race has needed slow, tortured ages to attain. (Dewey, 1916/1966, p. 37)

Marx noted the same phenomenon {9}. Whether a banana costs fifty hours of labour time or one hour of labour time, its material appropriation as a banana (its integration into the body as nourishment) is not affected. Again, the cost of production of a machine, when used as a machine through concrete labour, is irrelevant to its material use {10}. The independence of the use value of an object in the actual material process from the labour time required to produce it also forms the basis for Marx's distinction between the value

produced by labour power in action and the value required to produce labour power (Desai, 1979; Meikle, 1995) {11}. The independence of the useful properties of objects from the amount of human labour required to produce them also forms a basis for Marx's critique of capital and his theory of socialism, as we will see in chapter three.

E. The Dynamics of the reproduction of human life

The material production process as a process which potentially generates an internal dynamic was expressed in the Dewey school, and it finds an echo in Marx's own writings as the second premise of human history: "The second point is . . . that the satisfaction of the first need, the action of satisfying and the instrument of satisfaction which has been acquired, leads to new needs; and this creation of new needs is the first historical act" (Marx & Engels, 1845-1847/1976, p. 42). The process of satisfying material needs which are independent of human will results in the creation of new needs, which then have to be met with a further process of production and so forth. It is human need as a natural being which forms the basis for the development of human capacities.

In the laboratory school, children physically came into contact with and manipulated diverse raw material, such as wool and cotton (Mayhew & Edwards, 1936/1966). They then learned, at both a theoretical and practical level, of the different uses to which things--whether raw material or means of production--were put as well as their different properties. Initial contact was with the raw material, and then children learned of the diverse processes used throughout history to convert the raw material into output to satisfy human needs.

The importance of coming into contact with the material world for learning is implied in Marx's "Notes on Adolph Wagner," written in 1879 and 1880, three years before his death. Marx reiterated the importance of human dependency on the natural world as a basic premise of his theory. Like Dewey, he also implied that human learning, including language learning, was grounded in that dependency. Like Dewey, he criticized academics who reduce relations between humans to the level of theory {12}.

F. Consciousness

Marx's materialist view of human consciousness posits thought or consciousness as a function of life, and in the first instance of human material life in relation to the satisfaction of its basic needs {13}. Marx thus viewed epistemology and thought as a function of how humans altered the world. By acting on the world, they change both the circumstances for their future activity, and they change themselves as well because their capacities or potentialities for doing and using their environment change. Their relation to nature changes as the form of satisfying their basic needs changes and new needs emerge. By changing their capacities and the environment, they change both the content of consciousness (the environment) and the form of consciousness (the capacity to engage with the environment in a practical manner).

Thought and consciousness is a function of life, not vice versa {14}. The material presuppositions of human history and their associated social relations then form the background for human consciousness. Human consciousness can never escape its relation, directly or indirectly, to these presuppositions of its emergence. Human

consciousness is always related to and a function of the process of human living, which in the first instance is the reproduction of the physical being of the individuals and of the species: human labour (and human procreation). It is the necessity of producing their life and not just immediately appropriating the world of which they are a part that constitutes the springboard for human development, and the development of consciousness is tied to this process {15}. The development of human consciousness-- and hence the learning process--is a function of human beings' relation to nature and to each other. The extent of their consciousness depends to a great extent on the extent of their relation to nature and to each other {16}.

Dewey's view of the development of intelligence through the reproduction of certain experiences of past civilizations by means of occupations parallels Marx' own view of the nature of consciousness in general. Epistemologically, Dewey viewed thought as objective only in action. Its initial development requires resistance from the material world while humans are pursuing the concrete purpose of reproducing their material needs. The development of human consciousness to the point where it can operate without the mediation of practical action immediately requires accumulated experience of contact with the natural world. The senses and thought processes are called into play when a problem is posed in the pursuance of the basic needs:

Now, in the natural life of the individual and the race there is always a reason for sense-observation. There is always some need, coming from an end to be reached, that makes one look about to discover and discriminate whatever will assist him. Normal sensations operate as clues, as aids, as stimuli, in directing activity in what has to be done; they are not ends in themselves. . . .

The same principle applies in normal thinking. It also does not

occur for its own sake, nor end in itself. It arises from the need of meeting some difficulty, in reflecting upon the best way of overcoming it, and thus leads to planning, to projecting mentally the result to be reached, and deciding upon the steps necessary and their serial order. This concrete logic of action long precedes the logic of pure speculation or abstract investigation, and through the mental habits that it forms is the best of preparations for the latter. (1900/1976a, p. 93)

To learn the nature of the world, or the what, at least in the child's earlier, more concrete and unified stage, the child needed to use an object for a specific goal in order to appreciate the nature of the object--its contributory value to concrete social purposes (Mayhew & Edwards, 1936/1966). The children worked out the inventions experimentally in that they tried to use the raw material with inventions produced by themselves to see whether they could produce output. The children thus gained a concrete understanding of the need for certain specific means in its relation to the properties of the raw material and the purpose or end to be achieved. The consequences of an invention on social relations were also practically understood as the children reconstructed the social configuration following on the invention, "tracing its effects, not only upon that particular industry, but upon modes of social life" (Dewey, 1900/1976a, p. 15).

This parallel between Marx's view of consciousness and that of Dewey found expression in the initial subordination of symbolic learning to learning based on using concrete objects. Moreover, a major innovation in Dewey's philosophy of education was the linking of the three R's (reading, writing and arithmetic) to the functional needs of the community. This innovation could be termed Dewey's functional theory of learning. These three subjects, unlike the traditional theory of learning, were not taught in themselves, but as functions of communal life. Children learned their use-value, or their

meaning (the consequences derived from them) by using them as functions of an activity the purpose of which related to concrete living as a social being. Children learned about them and how to use them in response to needs which grew up out of communal living or the results of that living.

G. Marx's and Dewey's methodologies

Marx and Dewey also shared common views concerning the function of more developed relations in relation to less developed relations. Marx considered the understanding of the anatomy of the human being to be a key to the understanding of the ape or, more generally, an understanding of the more complex forms to be a key to understanding the evolutionary potential of earlier and simpler forms {17}. An understanding of the bourgeois mode of production thus provides the researcher with a means which can serve as a guide in analyzing earlier modes of production.

Dewey saw the relation between adult experience and its organized forms as being in a similar relation to the relation that Marx saw between later and earlier modes of production. Dewey distinguished between adult experience and its structure and childhood experience and its structure (1902/1976b). Childhood experience generally begins with a unified view of the world, from an anthropomorphic view. All relations are viewed as functions of personal relations. The impersonal relations characteristic of the organized forms of knowledge of adult experience need to be developed in the child starting from the childhood experience in its specific form as personal. To consciously develop the childhood experience, however, already presupposes a well-developed

understanding of the later, more complex and impersonal development of organized adult experience. A key to the anatomy of childhood development is in the anatomy of adult experience.

Dewey assigned two functions to organized adult experience with respect to childhood experience. Firstly, it aids in interpreting the possibilities of growth or development; it identifies those behaviours, interests and attitudes which have the potential to move in the direction of the more complex and organized experience. Organized adult experience thus has an epistemological function because it focuses one's attention on those aspects of childhood experience which have the potential to move in the direction of the more structured and differentiated experience of the mature adult. Secondly, it functions to guide the child in the direction of a broader form of experience.

Marx made a similar distinction between the specificity of the capitalist mode of production and its structure and earlier modes of production {18}. The organization of concepts required to understand the capitalist mode of production--which is parallel to the organization of mature adult experience--need not coincide with the concepts in their historical order--which is parallel to Dewey's view of the movement of experiences of children being different from that of mature adults. Marx in fact did not analyze landed property, which preceded capital historically, until the third volume of Capital. Even in volume one of Capital, he began his analysis of Capital through a logical presentation, beginning with the commodity.¹ The commodity is "the simplest social form in which the

¹A controversy has emerged over the issue of the nature of the beginning of Marx's Capital. Kain (1986) argues that Marx's first chapter of volume one of Capital on commodities begins with a general abstraction. Postone (1993) considers it to be a

labour-product is presented in contemporary society" (1879-1880/1975, p. 198). Only after a determination of the nature of capitalist production did Marx provide an account of the historical emergence of capital in the form of primitive accumulation and the severance of human beings from the land {19}.

Hence, both Dewey and Marx recognized the one-sidedness of the logical and historical approaches, if isolated from the other. Dewey viewed the educative process as the interaction of both:

From the side of the child, it is a question of seeing how his experience already contains within itself elements--facts and truths--of just the same sort as those entering into the formulated study; and, what is of more importance, of how it contains within itself the attitudes, the motives, and the interests which have operated in developing and organizing the subject-matter to the plane which it now occupies. From the side of the studies, it is a question of interpreting them as outgrowths of forces operating in the child's life, and of discovering the steps that intervene between the child's present experience and their richer maturity. (1902/1976b, p. 278)

The logical for Dewey corresponded to the organized forms of knowledge (especially science), but in schools this advanced structure is too often imposed on children without taking into account that their experience is a process which, though already organized by the time they begin school, by no means is identical to the forms of experience of

determinate abstraction. The latter view seems more accurate. It is true that the commodity is not commodity capital in the first chapter, but it would be impossible to begin with the latter since commodity capital presupposes the concepts of constant capital, variable capital and surplus value. Moreover, Kain would have to explain why Marx did not begin with other general abstractions, such as the division of labour, which is a presupposition of commodity production. The purpose of beginning with the commodity is that it permits a window into an understanding of the nature of the specifically capitalist mode of production.

scientific knowledge. Dewey's insistence that organized human experience is not to be identified with the organized but relatively undifferentiated experience of children constitutes one of Dewey's grounds for criticizing contemporary education and for the organization of the Dewey laboratory school.

Dewey made it clear that the educative process in schools requires the interaction of an immature child who has an immense potential for experiencing the world and an adult who already has certain social aims as a result of her experience in the world. The educative problem is how to devise an educational system which harmonizes the two or "to discover a reality to which each belongs" (Dewey, 1902/1976b, p. 273).

For the child, the world is the immediate environment, typified by an anthropomorphic outlook (Dewey, 1902/1976b). The world is first of all a world of people on whom the child depends. Objects and their laws enter into his purview only as functional items in relation to people's use of them. The world is, in the second place, a unity for her. Distinctions only gradually emerge as her experience extends outward in space and time. Shifts in attention come relatively easy since she becomes easily engrossed in the immediate and as easily engrossed in some other immediate. His life flows from one immediate to another, but his anthropomorphic perspective provides the unity of everything he experiences. She lives a virtually contextualized world.

For the intelligent adult, by contrast, objects are, to a certain extent, decontextualized by organizing them in a certain fashion independently of their use in one's daily or immediate life. The objects become depersonalized by being classified and reorganized into a structure which does not relate them to their immediate interactions

with human life. Separations and distinctions become vital in order to effect this reorganization:

Classification is not a matter of child experience; things do not come to the individual pigeon-holed. The vital ties of affection, the connecting bonds of activity, hold together the variety of his personal experiences. The adult mind is so familiar with the notion of logically ordered facts that it does not recognize--it cannot realize-- the amount of separating and reformulating which the facts of direct experience have to undergo before they can appear as a "study," or branch of learning. A principle, for the intellect, has had to be distinguished and defined; facts have had to be interpreted in relation to this principle, not as they are in themselves. They have had to be regathered about a new centre which is wholly abstract and ideal. All this means a development of a special intellectual interest. It means ability to view facts impartially and objectively; that is, without reference to their place and meaning in one's own experience. It means capacity to analyze and to synthesize. It means highly matured intellectual habits and the command of a definite technique and apparatus of scientific inquiry. The studies as classified are the product, in a word, of the science of the ages, not of the experience of the child. (1902/1976b, pp. 274-275)

The educational process in school should therefore have as its point of departure the child's mode of experiencing the world and have as its goal or terminal point a wealth of distinctions in the child's increasingly abstract experiences of the world while simultaneously maintaining the unity of experience. Childhood experience and adult experience, therefore, are not to be identified with each other. This identification can assume two forms: a logical one and an historical one. The historical identification reduces the more complicated structure to a variant of the simpler structure. The logical identification reduces the simpler structure to a variant of the more complicated form.

Similarly, Marx, in a different context, insisted that although an understanding of capital aids in understanding previous modes of production, especially their dynamics of change, capital should not be identified with these earlier modes of production {20}. The

reduction of the more complicated structure to the simpler structure is tantamount to treating history and epistemology on the same plane. The order of consciousness is supposed to be identical to the order of the coming into being of the object (empiricism), or the order of the coming into being of the object is supposed to be identical to the coming into being of the consciousness of the object (idealism). Marx broke with both {21}.²

There is, therefore, a parallel between Marx's analysis of the relation between an understanding of capital and the function of such an understanding in comprehending past modes of production and Dewey's analysis of the relation between an understanding of adult experience and the function of such an understanding in providing the teacher with guidance in what to do in the classroom when interacting with children. Dewey applied this distinction to the educative process. This distinction provided Dewey with a method by which to address the educative process of children, as will be seen in chapter two. This distinction also provided Marx with a method by which to address his critique of capital, as will be seen in chapter three.

²McCarthy (1988) contends that Marx's break with Hegel was mediated by Schelling's critique of Hegel's identity of thought and being at the ontological level. At the epistemological level, however, Marx did posit an identity, but in terms of a set of interrelated and ordered abstract categories which capture the immediate (empirical) forms theoretically while not being reducible to them (Murray, 1988).

Chapter 2: Dewey beyond Marx

A. Dewey's educational philosophy

Marx had little to say about the details of curriculum planning or the theoretical basis for its formulation or implementation. For critical materialist pedagogues, then, it would be difficult to know what to do when engaged in their role as teachers. Compared to Marx, at the practical level Dewey offered workers a far more concrete curriculum which would be useful in educating their children. As will be seen in chapter three, however, Dewey's theory is limited because it does not address the nature of capital. Consequently, it needs to be supplemented by Marxian theory if it is to address certain issues. Nevertheless, Dewey's educational philosophy does provide a basic outline of how critical materialist pedagogues could educate their students.

1. The interface between adult experience and childhood experience

Dewey posited four psychological principles based on the idea of inherent childhood impulses: the social impulse or the need to communicate in order to share with others one's experiences; the need to construct, expressed in play, gesture, imagination and, eventually, in the alteration of the form of raw materials; the need to investigate and experiment, which is a synthesis of the need to communicate and to construct; and, finally, the need to express oneself (aesthetic experience), which is the communicative and constructive impulses carried to their ultimate refinement (Mayhew & Edwards, 1936/1966; Wirth, 1966). These four impulses constitute the point of departure for the development of the child. The adult need not "motivate" children to do something;

children, by their very nature, have these inherent impulses to do certain things. By the time children are four years old, they already have determinate aims which they seek to realize.

For Dewey, a child's studies at school should be extensions of her own experiences or interactions with the environment in such a fashion that she can use her own impulses and interactions as an opening into the interactions of the species, interactions which have been organized to facilitate adult use. The diverse disciplines, including aesthetics, are the organized experiences of the species:

They embody the cumulative outcome of the efforts, the strivings, and successes of the human race generation after generation. They present this not as mere accumulation, not as a miscellaneous heap of separate acts of experience, but in some organized and systematized way--that is, as reflectively formulated.

Hence, the facts and truths that enter into the child's present experience, and those contained in the subject-matter of studies, are the initial and final terms of one reality. (1902/1976b, p. 278)

The present interactions which characterize a child's experiences implicitly contain the organized experiences of contemporary adults. The child's interactions or relations with the world do not occur in a vacuum but through the mediation of the use of things and the observation of the use of things by others. The child of three or four years old has already interacted with the world in this way. For the teacher and the community, the problem is how to link the specific experiences which the child already has had in present society with the organized and more impersonal forms of experience. The point of departure for teaching should always be the current experience of the child, but the terminal point should be the organized forms of knowledge through the mediation of an

increasing use of the method by which those organized forms have been produced. Both the method of organizing knowledge and the organized forms of knowledge themselves expand the horizon of the child beyond her immediate environment in both space and time.

Adult experience is useful or meaningful in this context only if it functions to identify the student's current activity and its relation to organized forms of knowledge; the adult can thereby provide the necessary guidance so that the child's activity moves toward organized knowledge and not away from it. From an adult point of view, the meaning of a child's current activity (such as the repetition of sounds in a rhythmic form) is not expressed in the activity itself but as a sign for something else, as part of a whole from which adults derive its meaning.

The adult needs to be able to distinguish attitudes, interests and activities which hold the promise of furthering the child's ability to deal with her environment in a controlled manner, expressed in organized forms of knowledge, and those which do not. The latter are not to be indulged in because they "arrest development upon a lower level" (1902/1976b, p. 280). Organized adult experience provides the basis for determining the meaning of the activity of the child since the latter becomes a sign for the possibilities present in it only if the adult already has experienced the more developed forms: "We do not know the meaning either of his tendencies or of his performances excepting as we take them as germinating seed, or opening bud, of some fruit to be borne" (1902/1976b,

p. 281).³ The teacher must therefore be a keen observer of a child's behaviour and provide the material and means at the right moment in order that the child can advance to the next, more complicated form of activity. By acting thus, the teacher provides positive direction to the child's activity. Adult experience is not thereby imposed from without but forms a bridge between the actuality of a child's present abilities and interests and the possibilities latent in them.

Adult knowledge is frequently logical in form. Its main concern is with the result, not the process of its coming into being. It is concerned with the what of experience and not with the how. By contrast, a psychological or logical perspective on childhood (and adult) experience looks at childhood learning from the point of view of process: of dealing with the subject matter personally, not abstractly in symbolic form. The latter, as concentrated experience, abstracts from the mistakes and false roads required to obtain the result.

The abstract forms of knowledge should not prevent individual mistakes, but they should eliminate many of those fruitless paths which the species has trodden. Through science or organized study the child "gets the benefits of the results of others' explorations

³It may be argued that some children have a natural tendency towards more abstract forms, such as poetry. Firstly, good poetry is rich in concrete imagery. Secondly, the point is not to inhibit such tendencies, but rather to link them to other impulses in a coherent fashion. Thirdly, implicit in such arguments is the view that poetry or other so-called abstract activities lose something by being linked to more concrete activities. Neither Marx nor Dewey viewed art in such idealist and elitist terms. Art needs to be linked to daily activities in order to enrich both activities. Moreover, such a view neglects entirely the need to link art and daily life if an individual and the rest of society are to develop in harmony with each other; such a view is ultimately atomistic and characteristic of early forms of bourgeois ideology which have increasingly regained currency in the past two decades.

without the waste of energy and loss of time involved in" their unguided activities"; science provides "an objective and generalized record" of the results of the activities of the species (1902/1976, p. 284). These organized forms of knowledge in symbolic form dramatically reduce the time required for the acquisition of something which may have taken the species thousands of years to produce. In other words, the time required to produce the knowledge, historically speaking, is much more than the time required to acquire it because of the symbolic and organized form in which knowledge exists. Dewey did not therefore denigrate organized experience and its importance to the learning process. Quite to the contrary. He considered it be to of supreme importance:

. . . science or study puts the net product of past experience in the form which makes it most available for the future. . . . It economizes the workings of the mind in every way. Memory is less taxed because the facts are grouped together about some common principle, instead of being connected solely with the varying incidents of their original discovery. (p. 284)

In an educational context, the use-value of science consists of its capacity to aid teachers in bridging the gap between childhood experience and organized adult experience--educational growth. It is a means for the adult but only gradually a means for the child. Education as growth entails the gradual acquisition of the organized results of the species' efforts at living in the world and understanding it. Educational growth means the capacity to function as cooperative but nevertheless unique members of human society. The development of the capacities of the individual harmonizes with the development of the capacities of the community; individual growth and social growth are one.

To link the child's experience with that of the adult, Dewey developed an outline of a three-stage theory of psychological growth for children based on his own philosophy as well as on his observation in the laboratory school. The first stage is the period from four years of age until eight years of age. This period is the play period, where impulses are translated into action with little mediation by the student in the way of the development of purposes beyond the concrete situation in which children find themselves. Four- to six-year olds are immersed in the play period whereas seven- and eight-year old students are in a period of transition between the play period and the next stage, the period between the ages of nine and twelve. This stage is characterized by the development of the capacity to formulate purposes which were less immediately connected to the concrete situation of the child. The undifferentiated nature of childhood experience became more differentiated as the child comes to interact with the world concretely. Like the seven- and eight-year olds, the eleven- and twelve-year olds are in a period of transition between one stage and another. Those children who are thirteen-years old and older are in the third stage, the stage where the adult forms of knowledge would be explicitly introduced, with their rich and nuanced distinctions of the world.

With his methodological differentiation of childhood and adult experiences, Dewey could formulate what he took to be an ideal education.

2. Real aims and an ideal education

The ideal education aims to develop an informed individual--an individual who possesses or has the capacity to obtain the necessary information relevant to solving

problems she faces in the world, either alone or in conjunction with others and to put that information to use in solving them (Dewey, 1916/1966). It also is to harmonize the development of the individual with the development of society. To achieve these goals, good teaching, which inculcates good habits of thinking, requires that a constant link be maintained between school activities and daily life. In particular, it requires: the student's activity in a concrete situation be of intrinsic interest; a problem organically linked to the situation arise; the necessary information relative to the capacities of the student for observation be present; and there exist the necessary material for the possible resolution of the problem so that the student can tentatively organize it in such a way as to attempt to resolve the problem.

Real aims emerge organically out of the present situation in which students find themselves (Dewey, 1916/1966). A student with a real aim needs to observe carefully the environment to determine what means are available and what obstacles there are to realizing the goal. A real aim also provides clues to the student on how to organize her capacities and materials in a structured sequence in order to obtain an anticipated result. It provides a means for guiding an activity (just as, in their own way, do the means used) {22}. It enables the student to contemplate alternative actions and their relative evaluation in light of the goal. A real aim, then, permits the development of rational activity or intelligent experience in the student. Therefore, a real aim should free the activity by permitting individuals to select means consistent with the aim so that the activity can be carried out successfully.

Finally, real aims teach flexibility because they change as those actively engaged

in their realization come better to understand the necessary activities and means required to realize them. Therefore, aims are not carved in stone; they themselves constitute means for the controlling of an action in definite circumstances. These aims should change if the circumstances change or if consciousness of the real circumstances changes--aims are a function of circumstances, not vice versa, and are consequently ultimately subordinate to the latter.

The circumstances include the curriculum. The curriculum must provide for the exploration of problems which humans face as social beings or as members of society. This subject matter, being related to the being of students as human beings, is more likely to be of interest to a child than that taken in abstraction from immediate human use and need (the adult form of experience). Subject matter which holds the interest of students permits the latter to pursue an activity consistently and continuously. Such material permits the present tendencies or capacities of children to be realized in concrete goals.

To make the curriculum relevant to students, schooling should incorporate occupations as the central base around which learning occurs:

In a rough way, all occupations may be classified as gathering about man's fundamental relations to the world in which he lives through getting food to maintain life; securing clothing and shelter to protect and ornament it, and thus, finally, to provide a permanent home in which all the higher and more spiritual interests may centre. It is hardly unreasonable to suppose that interests which have such a history behind them must be of the worthy sort. (1900/1976a, p. 95)

The sciences themselves, such as physics, grew out of the use of tools and machines (Dewey, 1916/1966). Similarly, electrical sciences emerged in conjunction with the application of electricity to communication, transportation and so forth.

The learning of subject matter should not be the principal concern of schools explicitly. Rather, schools need to provide situations in which ideas can be formulated and applied in such a way that individuals can widen and deepen their contact with the natural and social environment or context in which they live. Learning is a by-product of being concerned with the subject matter. For example, if an activity with a real aim depends on knowledge of mathematics (because the latter represents real properties and relations of the world in which we live), then this knowledge becomes an integral part of the student's life rather than just another subject to be studied for a remote future.

To learn Spanish, it is more useful to engage in activities where it can be used (the immersion principle). The learning of Spanish comes more from the conjunction of the activities and the use of Spanish (the subject matter) than on the concentration of Spanish per se. The learning of Spanish should not be the prime consideration, but rather the concrete activities and the concrete ways in which the students are engaged. In other words, the learning of Spanish should not be the conscious objective of students in Spanish immersion. Indeed, the teacher of Spanish should not frequently induce students to self-consciously consider that they are studying.

The teacher herself needs to be concerned less with the subject matter (he should already have mastered it) and more with the relation or interaction of the subject matter with the student's present capacities and needs. On occasion he may concentrate on the subject matter in order to have students consciously improve their activities, but only on occasion (just as, on occasion, the manager of a boxer will have the latter consciously focus on the perfection of a certain technique).

Since a student's capacities and needs are to harmonize with society's needs, Dewey implied that one's social function or occupation in democratic life should be a function of what is unique to individuals as individuals--what they uniquely can contribute to the social world. A democratic society entails a social organization which utilizes "the specific and variable qualities of individuals, not stratification by classes" (Dewey, 1916/1966, p. 91). The real individual contributes something new to others' experiences, something unique which cannot be replicated {23}. If society merely consists of a set of individuals without significant personal differences, it is hardly worthy of being served.

The determination or the measurement of the efficacy of schools, therefore, depends on the extent to which real individuals with non-reproducible skills or qualities are formed. Indeed, the measurement of educative growth is the quality of mental processes, that is to say, the extent to which the individual can unite material in a coherent fashion to address a problem she faces. Measurement or evaluation, according to Dewey, should not be a function of the number of correct answers a student gives. Given the current importance of the students obtaining the correct answer for many schools, Dewey's philosophy of education still provides some powerful criticisms of the way in which many schools teach students. He recognized that schools frequently divorced the aims of students from the subject matter being taught and from the proper methods used to teach it.

3. Dewey's critique of traditional schools

Dewey used the distinction between organized adult experience and relatively unorganized childhood experience to criticize two alternative philosophies of education. These philosophies collapsed the distinction between the two forms of experience, but from opposite ends. The traditional philosophy of education treated adult experience as the model for childhood experience; teaching and learning were based on the organized division or separation of disciplines. Purely intellectual work characterized the curriculum. Knowledge was something which was to be appropriated directly, usually through symbolic form. This philosophy of education thus concentrated on the three R's. In practice, this philosophy of education, although somewhat modified in the early years of schooling, is still practically the predominant form in capitalist countries despite the rhetoric to the contrary (Brosio, 1994a).

The alternative philosophy of education shared the same premise as the traditional one, but from the opposite side. It assumed that childhood experience in itself was sufficient to move toward the organized and developed forms of experience. It formed the ground for an historical approach to childhood experience, assuming that a purely temporal form without any structuring of the experience was sufficient to have children learn.

Since the bulk of Dewey's criticism was directed at traditional schools and their corresponding philosophy of education, undoubtedly because of their predominance in the American school system, a description of Dewey's criticism will be restricted to this area.

Dewey contrasted the old school curriculum and teaching methods with those proposed by him through the difference between "pouring in" and "drawing out." The former characterized the traditional curriculum, with its focus on the passive student listening to the teacher's lecture; the latter characterized the new curriculum, with its focus on directing the already active life of children who already have a distinctive life. Even a child of three has a distinct personality separate from that of her parents that needs to be drawn out. The child's distinct personality, however, is frequently violated by imposing external aims and goals.

External aims emerge from a situation foreign to the experience of students and are then imposed on students independently of the concrete situation in which students find themselves in the real world (Dewey, 1916/1966). They limit the development of intelligence by not permitting any organic link to the specific activities in which individuals have been engaged. Students cannot develop foresight nor the capacity to observe since the aim was not developed by them on the basis of their observation and understanding of existing conditions and means. Similarly, since the relation between means and ends is not organic, students will not develop the capacity to choose wisely among alternative means. The means used to achieve the external goal will probably be ill-adapted to achieve the imposed aim. Students will in such a situation learn the bad habit of selecting means without due regard to the aimed for result. External aims also teach inflexibility because their realization is required regardless of the means and activities required. They separate means and ends and by doing so reduce human activity itself to a mere means.

In intellectual teaching divorced from physical activity--typical of traditional schools-- the emphasis is on the teaching of isolated things which are only afterwards brought into a relation (Dewey, 1916/1966). Since the proper understanding of a thing requires its standing in a relation to other things {24}, in school students do not come to know adequately the material. Material that has no intrinsic interest to students thus fails to be connected to students' present purposes and capacities or, if there is such a connection, the students do not realize it. The study of mathematics by students, for example, is frequently divorced from any real purpose; as a consequence, mathematical properties and relations are not properly understood because they become meaningless abstractions. They appear to exist independently of human beings. The same could be said of the symbolic forms of reading and writing.

With external aims, the active phase of experience is separated from the passive undergoing phase (the experiencing of the consequences); the experience becomes meaningless or rather is not a true experience (Dewey, 1916/1966). Learning does not occur. In many schools, the separation of mind and body frequently leads to such a result. Activity becomes purely intellectual or spiritual, with no real consequences (changes in the environment) flowing back to the students. Artificial consequences, such as the obtaining of high and low grades, must then be created.

Concomitant with the imposition of external aims in typical schools is the acquisition of a smattering of information in each discipline. Indeed, schools have historically treated knowledge as if it were an entity unto itself; students are merely to "absorb" this finished knowledge. As a consequence, the aims or objectives become

external to the process of the coming into being of the knowledge. The concentration on external aims independently of the means used is thus reinforced by the concentration on facts independently of an understanding of how they became facts for human beings.

Knowledge is the result of active concern with problems, but in many schools it is the propositions or statements which are taken to be knowledge itself. The output of active inquiry is taken to be knowledge independently of active inquiry. Knowledge seems to exist independently of the active subject trying to resolve her own problems in a social context with others.

False problems typify many aspects of school. Many problems in schools are not an individual's problems but a student's problems: the student as a human being is cut off from the student as a student. The individual's problem is converted into the student's problem; the problem exists for the individual only in so far as she is a student. Once she ceases being a student (in her life outside school), the false problem no longer exists (unless it is homework). The problem for the student becomes one of satisfying the requirements of the teacher or the school system; the direct relation between the student and the subject matter is broken. The student then uses the material to resolve a false problem rather than a real problem. The use of the material is therefore corrupted or diverted from its proper use, or the material is already selected and formed to correspond to an external problem. A student who studies the material in order to satisfy the external requirements does indeed learn, but this learning is indirectly or unconsciously "the conventions and standards of the school system and school authority, not the nominal "studies" (Dewey, 1916/1966, p. 156)--the hidden curriculum. The student's problem

merely is to appear to satisfy school requirements, to fake concern with false problems.⁴

Learning which concentrates on the knowledge of the properties of objects independently of their use merely results in technical knowledge--the properties of objects independently of their process of being formed or their becoming or their use in other processes:

Exaggerated devotion to formation of efficient skill irrespective of present purpose always shows itself in devising exercises isolated from a purpose. . . . The technique is acquired independently of the purposes of discovery and testing which alone give it meaning. . . . It is argued that pupils must know how to use tools before they attack actual making--assuming that pupils cannot learn how in the process of making. . . . The error is the same: in all these cases it is assumed that before objects can be intelligently used, their properties must be known. In fact, the senses are normally used in the course of intelligent (that is, purposeful) use of things, since the qualities perceived are factors to be reckoned with in accomplishment. Witness the different attitude of a boy in making, say, a kite, with respect to the grain and other properties of wood, the matter of size, angles, and proportion of parts, to the attitude of a pupil who has an object-lesson on a piece of wood, where the sole function of wood and its properties is to serve as subject matter for the lesson. (Dewey, 1916/1966, p. 198-199)

For example, when students are to merely reproduce the form of words independently of their meaning, their activity becomes purely mechanical.⁵

An excessive emphasis on the acquisition of facts actually inhibits thinking because the student has little practice or criteria in determining what facts are relevant for solving the problem at hand. It requires practical, creative thinking applied to real

⁴See Peter McLaren (1993) for a description of the difference between the behaviour of students inside and outside their roles as students.

⁵French dictées are frequently merely the reproduction of the form of the word. The teacher may read the word in context (in a sentence), but the student is expected to merely reproduce the form.

questions to determine what is to be done rather than what has already been done.

Thinking, thought or ideas, unlike facts, therefore, are non-transferable because, to be real thinking, the individual must actively seek a solution to a problem.

When subject matter is artificial for students, it has several negative consequences: daily living is not enhanced by school activities; thought-processes are stunted because the material is at best only partially understood; and discipline problems naturally arise (Dewey, 1916/1966).

If what the student believes is not tested in practice, then he really does not understand what he believes. He has only a superficial understanding of his beliefs. Moreover, second-hand knowledge--knowledge which is not linked to and organized by the experience of the student--is meaningless because it cannot be used in daily life.

To aid the student in discovering the most adequate method in resolving a concrete problem, the teacher needs to observe what in fact is happening while the student is experiencing something in order that the student acts more effectively in controlling the experience. By disjoining method or thought and subject matter, the student obviously cannot discover the proper (most adequate) method even with the teacher's aid because the experience is constrained and is not permitted to assume its natural course. Methods cannot thereby be developed internally by the teacher's intelligent classroom observations.

This imposition of a foreign method on subject matter frequently if not inevitably results in discipline problems {25}. The teacher tries to impose negative consequences on students for not concentrating on the material, or to appeal to the student's will to

continue to concentrate on the subject matter. The teacher may also try to establish a connection between the students' "minds" and the subject matter through creating an exaggerated atmosphere of pleasure or excitement in order to make the digestion of the unpalatable material easier to bear.

When a student's own problems in daily life form in no way a part of the curriculum, the student may simply revolt. Alternatively, he may attempt to deceive by pretending to take an interest in the material, or he may take a half-hearted interest in it in order to please the teacher or his parents; in any of these cases the student often develops a confused view of what his real interests are. The student's world often becomes split into a private world of covert goals and publicly acknowledged goals; in neither case does the student really experience fully since the goal which is of interest to the student is suppressed, and the goal which is publicly acknowledged holds only a limited grip on the student's activities and powers of observation. Self-discipline is inhibited because the private goals are not subject to the disciplinary effect of consequences. Thought becomes undisciplined and less available for public purposes. School, by concentrating on the acquisition of knowledge or skills which have no immediate use to the child, deadens the child's natural capacity to investigate the world around her.

B. The Dewey school

1. General purpose of the school

Dewey did not just criticize traditional schools; he implemented his alternative at the micro level in the form of the University Laboratory School (or the Dewey school, as

it came to be known) at Chicago from 1896 until 1904. Ultimately, the task of the school was to create the harmonious social individual, where the acquisition of certain characteristics or dispositions by individuals would be in harmony with social ends (Tanner, 1997). To put it another way, individual development or growth and social development or growth, or the democratic way of life, were to stand in a non-contradictory and mutually reinforcing relation. Education as growth, divorced from the harmonious unity of individual and social growth, could not be true educational growth. The separation of the harmonious growth of individual capacities and social capacities was not, for Dewey, educational growth. Hence, the development of individual capacities at the expense of the development of the community, or the development of the community at the expense of individual capacities, was not educational growth.

To achieve this goal of harmonious educational growth, the school was to produce new ideals which would in turn gradually change social conditions (Dewey, 1916/1966). New ideals were needed because of the changed nature of the family and economy. The family was being stripped of its productive function as modern machine technology became concentrated in factories so that schools needed to compensate for this lack. The increasing separation of productive from family life led to egotistical behaviour and thus to a disjunction between individual behaviour and social behaviour. The school needed to compensate for this lack of community in the social world beyond the family.

2. Basic needs, occupations and the curriculum

The curriculum centred around the basic needs of food, clothing and shelter

needed by all human beings and the activities, grouped into occupations, associated with their satisfaction. Occupations, experimental science, history and art needed to be incorporated into the curriculum as primary and symbolic forms as secondary (Dewey, 1900/1976a). It was necessary to construct a mini-community with typical occupations in the wider society, occupations linked to the basic needs of human beings. Students learned a community spirit, understanding the need to integrate their unique (individual) capacities into the requirements of social life. This would be the best guarantee of a harmonious society.

Of course, there was a time and a place for books, but they were means of linking theory and practice. Doing things was only the beginning; learning how through the child's own activity was a prelude to learning why things occurred the way they did through the symbolic forms found in books.

In general, constructive work formed the ground around which other activities revolved. It provided contact with basic raw material, such as eggs, yarn, wood and tin in a relatively unformed state. Since the raw material was in a relatively unformed state, the child would have plenty of opportunity to alter the form. Such unformed raw material would also expand the possibilities or range of activities of children.⁶ The unformed raw material was also the proper medium through which a real purpose would be realized in tangible form rather than in more remote and abstract symbolic forms.

Typical occupations included textiles, carpentry and cooking. Physics and

⁶Dewey (1916/1966) explicitly criticized the Montessori method because it used material that was already too well formed.

mathematics were involved in textiles. For example, while using the spinning wheel, the children "worked out the diagrams of the direction of forces concerned in treadle and wheel, and the ratio of velocities between wheel and spindle" (Dewey, 1900/1976a, p. 52). In carpentry and textiles, there was a geographical link drawn between the countryside and the material used. Physics was applicable to carpentry through the problem of how energy was applied and its direction redirected. Carpentry was connected to art through architecture. Textiles were connected to it through the different patterns produced in the weavings (Mayhew & Edwards, 1936/1966).

Cooking was linked to geography since what was cooked came from some physical location on the earth. Moreover, the act of cooking itself imaginatively occurred under varying local physical conditions of the environment; the children came to understand the influence of the physical environment on the specific mode of cooking. Cooking also led into botany and into the study of the uses of plants in other areas of human life, such as in the textile industry. It also led into the study of chemistry since cooking necessarily involves chemical processes.

These activities were selected for at least four reasons. Firstly, as already indicated above, they were activities which involved problems common to all members of the human species, such as food, clothing and shelter (Tanner, 1997). The human species' relation to nonhuman nature could thus form a key element in developing a democratic and cooperative community as children learned the common problems which all humans faced, directly or indirectly, throughout their existence. The resolution of problems associated with the provision of food, shelter and clothing also required cooperative

activity conducive to having children take into account the activities of others as they engaged in their own activities. How these common problems were solved in different generations and civilizations could then be analyzed, compared, reproduced and resolved by the students (the reconstruction of experience). Secondly, the study of the different disciplines could be integrated at a horizontal level (across the same grade level) through the study and use of these disciplines to resolve real problems faced by human beings through time in the process of reproducing and altering their material environment. Each grade could be assigned a topic with problems the solutions of which were deemed appropriate to the age group.⁷ Thus, in the study of spinning, the equivalent of grade-seven students found that "they needed to know the ratio of revolution of the small to the large wheel in spinning" (Laboratory Schools Work Reports, 1898-1899, p. 39, cited in Tanner, 1997, p. 77). Chemistry was also studied in industrial history, where the students "prepared raw material, dyed, and steamed" (Tanner, p. 62). The integrated study of mathematics, chemistry and history at the horizontal level became possible.

Thirdly, it permitted the vertical integration of the subject matter (across grades) (Tanner, 1997). Teachers were expected to know what they were to teach in relation to antecedent curriculum provisions as well as subsequent curriculum provisions in their areas of specialization, always in relation to the central theme of social occupations.

⁷Instruction was at first by a generalist teacher in a multi-age setting, but it was found that neither a generalist teacher nor a multi-age structure could adequately provide students with sufficient guidance in their activities. The curriculum was then taught by specialists in specific disciplines organized according to age at the elementary level (Tanner, 1997).

Thus, cooking was taught throughout the elementary grades, but from different vantage points (disciplines). The French teacher linked French to cooking at a particular grade level. The students also began to study the chemistry of cooking at certain grade levels. A curriculum organized around the theme of occupations, therefore, permitted the integration of the humanities and the social and physical sciences at the horizontal and vertical levels.

These innovations in curriculum design at the horizontal and vertical levels reflected an attempt at synthesizing a child-centred approach to education to an adult-centred approach. Teachers were expected to plan activities on the basis of subjects, with organized knowledge an already given fact, but to link their subject expertise to the theme of social occupations and to specific activities related to those occupations. Learning started out as an undifferentiated unity (the child-centred approach) and gradually developed into differentiated learning according to subject matter (an adult-centred approach) so that the child moved from an abstract appreciation of the basis of social life to a concrete appreciation of it. The curriculum was thus organized on a subject basis from an adult point of view but organized on an interdisciplinary basis through the theme of social occupations from a child's point of view or experiences in the school.

Fourthly, and perhaps most importantly, these occupational activities provided the foundation for what Dewey considered to be real human (social) learning: the process of resolving real problems for concrete purposes. Thinking is problem formulation and problems solving. The learning of the subject matter was to be linked to a need for the formulation and resolution of real problems. Learning was not to be divorced from the

functional need for it until the later grades. Childhood learning was to be learning linked to functional needs. In spinning, as noted above, the problem of determining the ratio of the large to the small spinning wheels arose. Subsequently, practice or drill in fractions as such did take place, but only when the children themselves understood the need for such study based on the problems with which they were faced so that they could resolve the problems. Another example was when children were challenged by the problem of friction when they were studying navigation and its development. How the material form of the boat (whether it had a pointed bow and a stern or was merely a flat boat) resolved or reduced (or did not resolve or reduce) the problem of friction was studied by actually making a flat boat (Tanner, 1997). The physical concept of friction was learned in relation to its functionality, that is to say, to its role in creating or resolving concrete human problems of a practical nature.

3. History and geography

History and geography formed a vital component of the curriculum since they provided the means for the bridging of the gap between adult and childhood experience. The integration of history into the curriculum enlarged the temporal framework within which children lived and permitted them to reproduce the problems the species had faced while attempting to meet its basic needs. The present would thereby gain in significance since the children would be living the consequences of the past which still persist in a more complicated form in the present. The students therefore reproduced certain occupations in past civilizations. The historical was not, however, to be taught

chronologically but psychologically, in accordance with the level of prior learning and its link to other civilizations. For example, after having studied the Phoenicians, the students began to study the European explorers since the question of exploration came up while they were studying the Phoenicians.

Similarly, geography expanded the physical horizon of children as they learned about the different ways in which humans met their needs in different places in the present and past. The children learned that their roots and their development were in the earth and their relation to it. The occupations permitted many occasions for the understanding of geography. Thus, a sand table was a regular piece of equipment on which the children could indicate the topography of a region while reproducing in miniature the lives of past civilizations. The problems posed by the geographical terrain forced students to think about how earlier civilizations resolved problems which today are taken for granted (such as irrigation or a water supply for a city).

4. Activities of the school according to group

a. Groups I-II

As in all the groups, the way in which activities were to proceed was through discussion between teacher and students (Mayhew & Edwards, 1936/1966).⁸ What to do was thus frequently a shared concern, and discipline as self-control developed as a result.

⁸To separate the nature of the school from traditional schools, classes or grades were called groups. It is necessary to add three to the group number to determine the age of the children.

The tasks were discussed each morning with each child in turn serving as leader. The subprimary group (four- and five-year olds) had a schedule of a half-hour of handiwork followed by songs and stories, marching and games, lunch, and dramatic play and rhythms. The order varied according to the needs of the students, but the general rule was that a period of concentrated effort was followed by a period of relaxation. Hand work "included constructive work, play with blocks, drawing, painting, modelling in clay, work in the sand, or any suitable medium of expression" (Mayhew & Edwards, 1936/1966, p. 57).

All these different activities had as their focus home life and the occupations associated with them, such as cooking and sewing. Reinforcement of the theme of home life occurred through nature walks, where the teacher emphasized the homes of birds, animals and insects. Children were also encouraged to share their experiences of home life. They were thus introduced into the wider world through something which they themselves had in common. The dependence of each home on clothing, food and shelter became evident as the teacher facilitated their discussion. The people who produced these basic goods gradually became a topic for study. Indeed, one of the tasks of the teacher was to guide discussion and activity toward social areas which provided a link to the entire human species.

The serving of lunch and the associated activities of the organization of the chairs and the cutlery as well as the washing and drying of the dishes enabled students to act in a cooperative manner. Apparently the different functions that the children performed were rotated so that "the youngest child gradually came to competent control of the whole

procedure" (Mayhew & Edwards, 1936/1966, p. 66). The children's serving of lunch also provided an opportunity to learn fractions and their addition or multiplication since those responsible for serving distributed half an apple to each student. Gross and finer motor skills were also developed as the children carried the dishes to the table, and washed and dried them. They had to coordinate their activities to achieve a social end.

Communication was essential if they were to do this.

The study of the home led to the study of the farm and the different kinds of land appropriate for meadow, pasture and the production of grain by cooperatively creating a model farm in a large sand tray (Mayhew & Edwards, 1936/1966). In one instance, the dependence of children's homes on occupations outside the home led to a visit to a farm. This visit led to play and drama, where the different children divided up the work required to distribute and exchange the output produced on the farm. The children made the distinction between wholesale and retail sales at a practical level by distinguishing between the two different commercial functions in their dramatic plays.⁹ The school thus endeavoured to provide a continuous experience between the home and the school while expanding the contact of the children with the social world of which they were a part.

b. Group III

Since children were mainly still at the play stage, only two-fifteenths of the school

⁹Judging from a study by two Italian researchers (Berti & Bombi, 1988) who used a Piagetian model to determine the development of children's conception of economics, the Deweyan students were well advanced. Distinctions between wholesale and retail trade did not emerge until the concrete operatory period (seven to ten years old).

week was devoted to intellectual subjects, which involved "stories and conversations about the social activities of the group" (Mayhew & Edwards, 1936/1966, p. 75). Even at this level, though, the teacher encouraged children to search for information that would be useful to them in their daily play activities that centred around home life. The children thus began to perform elementary research even at the age of six.

The focus shifted from home life to the occupations which served the household, especially that of the farmer. The study of farming was designed to show the nature of certain activities, the things used and how they were used, and how the farmer contributed to the social whole. The teacher also guided them--gradually--towards a shift from a concentration on who did what in relation to home life to the what or the objects of home life. No explicit separation of the who and the what were, however, made at this stage. The study of the properties of objects were always related to their use by human beings because the point of departure for children's understanding and controlling the world was their own life.

Daily outdoor excursions led to the collection of seeds that were edible, which in turn led to a classification of various edible seeds according to the part of the plant which was edible. The search for and the classification of edible seeds went hand in hand with cooking, which was first introduced during this year. The students cooked cereal, learning as a by-product liquid measurement and further work in fractions. Discussion in the classroom complimented the activity in the kitchen and vice versa. The origin of seeds in plants led to the observation of the need to cultivate plants. The children sowed winter wheat. The problem of how to obtain the seed arose. The children, through their own

experience, found working by hand inadequate, so they beat the plant with a stick. Still finding this method inadequate, at the suggestion of the shop director they constructed a flail. They then ground the wheat and used the flour to make a cake.

Dramatic play reinforced the theme and enlarged the scope of their understanding of the world around them. The children played different parts, ranging from the farmer to the grocer. Initially milling occurred locally at a small scale. The farmer paid the local miller in kind by letting the miller keep some of the flour. As the scale increased, the grain had to be transported to a large mill. The farmer then had to purchase the flour produced at some distance from the local farm. The children realized that a new division of labour would be necessary; they altered the play and a new division of tasks arose accordingly.

Work in the shop also aided in the production of items for the play. Similarly, the children used the textile studio to produce bags for their grain on the looms. The art studio likewise provided the children with the occasion to design items in their plays.

The children also studied wool production and its connection to certain areas of the earth. They manipulated the wool and discussed the different processes through which wool was produced. The theme was, as usual, reinforced through song and story in order to integrate the aesthetic aspects of the theme to its more practical or constructive aspects.

From the study of wool the students moved to the study of cotton, with its different geographical distribution. The students manipulated the cotton ball, planted some cotton seeds and weighed the cotton before and after ginning. They then were shown samples of cotton in its various stages of production before they themselves

proceeded to reproduce the cotton yarn. Once again the whole process was reproduced in dramatic form through a division of roles that represented the division of labour. The written account of what the students had learned about cotton was read to the entire school during assembly.

Similar procedures were used to have the students practically understand the importance of irrigation, the lumber industry, and coal mining. Each occupation or activity usually began and ended with a play. The children could thus verify for themselves their gain in power practically, theoretically and artistically. Work on phonetics was dispersed throughout the year, and work on reading and writing connected sentences was concentrated near the end of the year.

The cooperative spirit of the school as a whole was expressed in a number of ways. Group III went to assembly as a whole as did, presumably, other groups. It went with Group IV twice a week to gymnasium, participating in plays with them, and played games with them. They also played games and music with groups I and II twice a week.

c. Group IV

The students in this group worked more in textiles than in the shop or kitchen, and time spent in the art studio increased (Mayhew & Edwards, 1936/1966). Although the group was still in the stage of play, it could, to a certain extent, develop an idea before immediately expressing it. Growing consciousness that the use of specific means leads to specific consequences meant that the child was ready to experience environments beyond her local environment. Experience was made dynamic through studying occupations in an

historical context, beginning with what Dewey and the teachers called primitive (prehistoric) times. The curriculum still always formed a continuity because of the focus on the need to satisfy the basic requirements of food, shelter and clothing.

The topic of animals and their integration into the diet of humans led to a discussion of how animals became domesticated. The children imaginatively became a tribe that had domesticated some animals. The impact of this change on the mode of living was discussed, in particular the transition to a semi-nomadic way of life and a permanent life as agriculture became the basis of food and clothing.

The construction of a primitive potter's wheel, to be improved upon, required the development of skills in construction and communication if the result was to be functional. "What each one did was never fully appreciated until it was passed on to others, and what one received from others frequently had to be tested to be approved" (Mayhew & Edwards, 1936/1966, p. 115) {26}. The children also spun raw wool from spinning tools reconstructed on the basis of historical knowledge of these tools, and they attempted to improve on these tools. They also wove on reconstructed prehistoric looms. With the development of crafts, such as weaving, the children could see concretely how exchange could arise between different tribes or communities {27}.

The discovery of the usefulness of metal was then taken up. The way in which humans discovered metals varied from year to year. One year they melted metals to determine their heating properties, linking the discovery of copper to fire and charcoal. They constructed clay furnaces individually at first and then collectively built a larger furnace to melt the ore. This collective effort, of course, led to much communication out

of practical need as new problems arose as the work proceeded. Work in the shop, kitchen, music room and other areas reinforced the theme of prehistoric living in general and the production and uses of things at that epoch in particular. The relation between the environment and social relations in the past became a living reality as the children attempted to reconstruct the lives of the tribes. This relation was reinforced by dividing the class into groups located in different physical conditions, with some growing wheat, others having a ready supply of ore, while others were located on the coast. The relation between practical work and fine art also became evident since the latter was clearly seen to emerge from the possibilities of the former.

Near the end of the year the children summarized their experiences in written form. They concluded that the necessity of living involved change and that thinking and its realization through invention constituted the means for effecting change.

d. Group V

The seven-year olds' experiences in reconstructing prehistoric life provided a concrete basis for a study of other societies which kept written records--the study of history proper. The children of group V first studied and reproduced the life of the Phoenicians. They studied the occupation of merchants through the study of the Phoenicians since the latter were a trading nation. This civilization was chosen after a failed attempt at teaching the civilization of the American Indians; the latter lacked the links necessary for future development of children.

By studying the Phoenicians, children became conscious of the need for

merchants:

As indicated in the children's own records, a need arose for persons able to make usable articles from raw materials and for those who exchange these articles for others needed but which cannot be produced. (Mayhew & Edwards, 1936/1966, p. 119)

The notion of measures of value and of use-values was adumbrated:

Through enacting their rôles these children came to appreciate the tasks of these first carriers of the world's commerce, and how a system probably evolved by which the products of a people could be measured and valued, and the records of such transactions kept. (Mayhew & Edwards, p. 120)

A parallel was then drawn between the merchant in ancient times and that of the modern epoch: "Only a word is necessary to link this situation with the rôles of the salesman, the commercial traveler, or the advertising agent of the present" (Mayhew & Edwards, 1936/1966, p. 120).

By studying the Phoenicians the children also gained an understanding of the concrete need for writing since a system of records became necessary. The alteration of the form of writing from a picture to an abstract symbol was taught through the transition from a picture to part of a picture representing the whole picture to a completely abstract and arbitrary symbol.

The type of homes most suitable for the Phoenicians was discussed. The children concluded that stone was the most suitable raw material, so they imagined they were masons. In the process, they learned about gravitation as a force. The origins of tin (presumably as an item of trade) also became a topic for study. The children followed its source to England. Water transport then emerged as a topic of study. The children built a simple boat. The problem of how to reduce friction was resolved through the alteration of

the form of the bow and stern; they became pointed. Along the same lines, they solved the problem of how human beings could use the force of wind to their advantage through the material form of the sail. They thus learned how a sail could aid in using wind power to achieve specific ends. The problem of how to keep accurate records of the distance traveled resulted in translating spatial relations into temporal ones through the concept of the rate of speed.

Science emerged in the form of an experiment which answered a specific question and which returned to be used by students in the concrete problem from which the problem arose. Science, or the pursuit of knowledge, was therefore differentiated to the extent that children became conscious of the need for a special process, but this special process always answered needs derived from human life. Science did not exist for itself, but for human needs.

Students next studied world explorers despite the gap in chronological order because they had already been prepared psychologically for such an adventure. The children learned of the early efforts at mapping the world and began to learn in more detail how to draw maps. This effort was supported in the shop and the art studio through a study of ratio, proportion and symmetry. Arithmetic, reading and writing all centered around the adventure of exploring the world. This practice in such skills was always related to the concrete aspects of the occupation studied so that the children could see the need for such study.

The emphasis on cooperation and progress expressed itself in various ways. One year this group was divided into two sections. Section a "was made up of children of

such decided personality that the spirit of the group was conflicting and critical. . . . In group b, on the other hand, a congenial spirit ruled with the result that they progressed faster and accomplished far more than Section a" (Mayhew & Edwards, 1936/1966, p. 138).

Cooperation and progress extended to explaining the slave trade in the following terms:

An account of the capture of some of the natives followed. The children's own ideas of what could be done with the prisoners were elicited, as this was the beginning of slavery and the slave trade. They were told of Prince Henry's desire to make them Christians and how the children were often adopted, of the early attempt to teach the adults trades and its failure because their ineptitude made them unfit for any but the most laborious work. (Mayhew & Edwards, 1936/1966, pp. 129-130)

The main reason for studying the Phoenicians, the European civilizations (or any other past civilization) was to gain an appreciation of the problems which they faced in their particular conditions, how they overcame them, and how progress was thus secured up to the present:

The main purpose of the work was to stimulate the children's minds to study, and so far as they were able, to seek solutions for certain of the problems of the Phoenician type of civilization that must be solved in order that progress in comfort and convenience in living might be made. (Mayhew & Edwards, 1936/1966, p. 123)

This view differs from that of Marx, for progress in civilization in Marxian terms has hitherto been a necessary consequence of the development of some individuals at the expense of the development of others through their exploitation. Despite the many theoretical points in common concerning human nature, Dewey and Marx would have parted company over this issue. Regardless of the evident advance in educational theory

and practice developed by Dewey, the principle of cooperation as the foundation of progress and the principle of class struggle as the foundation of progress stand in opposition to each other. It is to this difference that we must now turn.

Chapter 3. Marx beyond Dewey

A. The Marxian critique of capital

1. Capital, methodology and epistemology

Capital is a very peculiar social relation. To understand it, it is insufficient to understand the historical elements of which it is composed. Dewey himself implicitly admitted that this was true in his own distinction between adult experience and childhood experience. He also implicitly agreed with it in his battle against what he called the old individualism (which has regained a foothold as the ideology of some intellectuals, with their atomistic view of human beings):

That the human infant is modified in mind and character by his connection with others in family life and that the modification continues throughout life as his connections with others broaden, is as true as that hydrogen is modified when it combines with oxygen. (Dewey, 1935/1987b, p. 31)

The new whole cannot be reduced to the isolated parts of which it is composed. The nature of the independent, isolated parts become modified as they merge with other parts. Applying this methodological principle to history and the bourgeois epoch, it is necessary to analyze the new synthesis called capital rather than attempting to understand this specific synthesis through an understanding of the history of the coming together of its various parts. Marx's analysis of capital did just this. Marx's critique of capital separated the bourgeois mode of production from all earlier forms of production; the former was based on the production of (exchange-) value, the latter on the production of use-value.

Marx developed a set of interrelated logical categories which were designed to

determine the specific nature of capital; Marx did not therefore follow a historical approach to an understanding of capital. To the extent that Dewey developed a psychological theory which was designed to determine the specific nature of childhood experience and its relationship to adult experience, his method parallels that of Marx. However, as will be shown below, Dewey was simply ill-equipped to criticize capital adequately. Dewey did not follow his own methodology of distinguishing the logical and the historical when it came to analyzing modern capitalist society; rather, he followed an historical and technologically deterministic approach. By contrast, Marx followed a logical approach to an understanding of present society. To this approach we must now turn and analyze in more detail.

2. The specific nature of capital: Marx's dual theory of labour

Marx provided a systematic critique of capital on the basis of a dual theory of use or a dual theory of labour which many Marxists and their critics have never appreciated. Marx relied on Aristotle's distinction between the use of shoes as shoes and the use of shoes as a means for obtaining another commodity (as a means of exchange):

Take for example, a shoe--there is its wear as a shoe and there is its use as an article of exchange; for both are ways of using a shoe, inasmuch as even he that exchanges a shoe for money or food with the customer that wants a shoe uses it as a shoe, though not for use peculiar to a shoe, since shoes have not come into existence for the purpose of exchange. (Pol. 1.9, 1257a 6-13, cited in Meikle, 1995, p. 8)

Both are uses of shoes, but they are not the same kind of use. Dewey never analyzed this double use systematically. In many ways, he restricted himself to an analysis of the

educational process based exclusively on a naturalistic philosophy of use-values and consequently lacked a systematic basis for criticizing the specific nature of capitalist production and capitalist society (McBride, 1988). His philosophy, critical though it was, ultimately implied a unidimensional use of things.

To better understand Marx's critique, it would be useful to elaborate on Aristotle's double distinction since Marx, in many ways, did the same. The shoes used as means of exchange are commodities (C), are exchanged for money (M), which in turn is exchanged for another, different commodity (C), say some cheese.¹⁰ With exchange represented by a dash, we have: C-M-C, selling in order to buy, or the commodity circuit. The shoe is used to obtain, in the first instance, money. This use of the shoe is for the immediate purpose of obtaining exchange-value or money and is quite distinct from the use of the shoe materially. The use of the shoe materially is performed by the actual consumer of the shoe, not its seller.

The obtaining of the cheese--a qualitatively different commodity--by the original seller of the shoe is the purpose or telos of the total process. The person who sells the shoe uses the shoe, but does not materially consume it. This could be called the abstract use of the shoe. It is only the purchaser who does that; the material consumption of the shoe could be called the concrete use of the shoe.

This is where Marx's analysis enters the picture. Marx asked: what happens if all

¹⁰As Meikle (1995) remarks, the notation is that of Marx, but the idea is that of Aristotle. For additional references to Aristotle and Marx, see the select bibliography on pp. 485-486 of Aristotle (1981).

things produced and used have a double aspect. Aristotle's analysis once again aided Marx in specifying the problem. Aristotle distinguished between the commodity circuit from a fundamentally different circuit, the circuit of money capital, where money is used to purchase commodities, which are then sold to obtain more money (M' , where $M' > M$), or $M-C-M'$. The difference between M and M' is a surplus of value or surplus value. The shoe once again is used to obtain exchange-value, but it is used abstractly to obtain more exchange value. The purpose of the whole process is no longer personal consumption (wise management of the household) but an increase in exchange-value.

Marx extended this idea to capitalism. Means of production and human beings have this double use: the capitalist purchases the means of production (MP) and labour power (L) (the capacity to work, the commodity the workers sell), uses them abstractly in the capitalist production process (P) to produce a commodity output (C') greater in value than the initial inputs; C' is then sold for an equivalent value in money.

The money circuit of capital is:

$$M-C(=MP+L) \dots P \dots C'-M' \text{ (Marx, 1884/1977b).}$$

The three dots represent an interruption in the circulation process of capital. Now, if we abstract from the exchange process, we have:

$$M \dots P \dots M'$$

The capitalist production process, which includes human beings and machines, etc., is used abstractly as a means to increase (exchange-) value, or ultimately the amount of money. Human beings and the means of production are used in two ways: concretely by workers setting their own bodies in motion and actually consuming or using the means

of production, and abstractly, as a means to produce greater (exchange-) value. Both are uses of the machines and human labour, but in a different way, as Aristotle pointed out. This dual use formed the basis for Marx's critique of capital {28a, 28b, 28c}.

Marx evidently considered the dual theory of labour to be of supreme importance in the exposition of his theory and critique of capital. However, most commentators have concentrated on an admittedly other important distinction: that between labour and labour power and the connection between that distinction and the source of surplus value. However, Marx explicitly indicated that an adequate understanding of surplus value presupposed an understanding of surplus value {29}. Whatever the interpretation of the dual theory of labour, there is little doubt that, for Marx, the distinction between concrete and abstract labour was crucial for his theory and critique of capital. Partisans and critics of Marx who do not refer to this dual theory have constructed a straw Marx to correspond to their preconceived views. Given the importance of this distinction, a quite different view of Marxian economics emerges.

The concrete use of things, when applied to production, can be called concrete labour. The abstract use of things, when applied to production, can be called abstract labour. Marx relativized the latter and the concomitant property of commodities to possess (exchange-) value. It is only under a definite social structure, where labour as it is being performed is not social labour (it has no direct connection to the needs of others) but must become social labour ex post, that output results in the production of value. The "objective or intrinsic value" of commodities (of objects produced for exchange) is itself relative to a determinate social structure:

The result of that closer consideration is the distinction of a dual relativity, an external and a substantial. That which is relative in substance can appear against external relativity as something absolute and non-relative, but only within particular limits and under particular abstract presuppositions. In that sense Marx sometimes speaks of 'absolute value', opposed to qualitatively and quantitatively determined 'value-forms', as the 'expression', the 'form of appearance' of absolute value. That value, which sometimes appears in Marx as 'absolute value' opposed to the value-form [exchange-value, or the exchange relation between commodities], is relative (relative in substance)--(a) in the sense of the historically relative character of the value-substance and (b) in the sense that it is created by the relationship of individual human labour to the total amount of labour that is socially necessary. (Zeleny, 1980, p. 24)

To illustrate this principle, consider a capitalist society. Its existence presupposes a well-developed division of labour since exchange, a basic condition for a capitalist society, itself presupposes a division of labour. People's labours are intermeshed with others' labours in terms of inputs and outputs. They are also determined internally in the sense that people's labour becomes part of a coordinated material structure (or capitalist firm).

Assume that all output has to be sold. During the act of production, the change in the quality of the inputs materially does not result in the output being socially useful (if it were socially useful as it were being performed, there would be no need for exchange). If each unit is to reproduce itself--and hence if society is to reproduce itself--it must connect up its output with other units of production in some fashion. If human labour has the property of being social labour to the extent that the labour involves directly or indirectly working with others, and yet the labour while it is being performed is not social labour, what is produced is a specific output which is not yet a social product.

This situation can also be expressed in terms of parts and wholes. Each capitalist

unit is a part of the total division of labour. However, this part is quite curious. It is a part that does not function as a part qualitatively while human labour is being expended. The labour being performed is not social labour, connected to other human labour and determinate needs, while it is being performed. It needs to become a part only after the micro production process is at an end if it is to count as a part of the whole: "Finally, nothing can be a value without being an object of utility. If the thing is useless, so is the labour contained in it; the labour does not count as labour, and therefore creates no value (Marx, 1867/1977a, p. 131).

A commodity's property of having value, then, is a result of a certain way of organizing human labour in a determinate form of society. This value is intrinsic value for the capitalist system. This property, being social, can change and indeed can disappear since it is not identical to the general or transhistorical abstractions of production as such. Value is an intrinsic property of commodities in relation to a determinate form of society, but by no means coincides with the material production relations characteristic of all societies. This intrinsic property is relative to other societies and relative as well to its own material or concrete process of production.

Since concrete labour is not social labour as it is being performed, and the latter is not expressed immediately in the concrete use-values, the possibility arises that the amount of concrete labour does not translate into the same amount of social labour {30}. This possible non-identity has major implications for the structure of human life; a

dynamic quantitative process is built into production (Postone, 1993).¹¹ The quantity of labour required to produce output becomes a concern because the mere expenditure of concrete human labour does not necessarily suffice to meet standards set by the general level of productivity in a particular industry. If those standards are not met, the capitalist firm cannot in the long run reproduce itself. For the capitalist firm to survive, an external pressure is brought to bear on producers to meet that standard. As Postone (1993) remarks:

The tyranny of time in capitalist society is a central dimension of the Marxian categorial analysis. . . . the category of socially necessary labor time . . . is a category that . . . determines the amount of time that producers must expend if they are to receive the full value of their labor time. . . . labor time expenditure is transformed into a temporal norm that not only is abstracted from, but also stands above and determines, individual action. . . . time expenditure is transformed from a result of activity into a normative measure for activity. (pp. 214-215)

This aspect of the dialectic between concrete and abstract human labour can be called the internal dialectic since it relates to the internal dynamics of work as it is being performed under capitalist relations of production. The peculiar character of the part of a whole in capitalist production is that the quality of functioning as part of total social labour is transformed into a purely quantitative form. The specific quality of social labour under bourgeois rule is the priority of its quantity over its concrete quality.

The concrete consequences for workers of this social structure which results in the production of value can be seen by looking at a modern capitalist petrochemical factory in

¹¹A qualitative dynamic is also set in motion as capital tends to convert all relations into commodity relations See Lukacs (1968); Postone (1993).

England:

The packer stands under the hopper spout at the end of the packing band. . . . A swift upward motion releases a measured hundredweight into the bag and onto the rollers. All in three seconds. . . . From here they roll to the loading bay where, at the 'band end,' they thud onto the shoulders of the two loaders. If the bags are going 'to road', the two men stack them three or five deep onto the back of a lorry. They catch the bags, turn and drop them. Catch, turn, drop . . . catch, turn, drop. . . . Every six seconds. Catch, turn, drop. . . . The 'band end' cannot extend into an enclosed rail wagon so when going 'to rail' there's a deflector which turns the bag onto your shoulder. You only have to catch and drop. But only one man can get into the door of a wagon so they take it in turns. Catch and drop . . . catch and drop. . . . A hundredweight bag every three seconds. Warm bags that burn your shoulder; leaving it red raw. In the summer it's stifling. Catch and drop. . . . (Nichols & Beynon, 1977, p. 13-14)

The pressure to survive (remain competitive), even for a multinational, obliges representatives of capital to treat workers as blobs of labour time--with or without a human face.

There were 140 "donkey workers" and 40 "technical workers" in the factory. The donkey workers were controlled technically through the movement of the machinery, which in turn was controlled by management. Management itself, through its foremen, also controlled these workers.

The technical workers were not really supervised in the sense that someone watched them constantly or controlled their movements in detail through technological processes. Looking at the technical workers and their level of autonomy, however, is instructive:

They [the technical workers] find it 'difficult to relax', they tell you that the 'thing about this job is that you spend half your life just looking for trouble'. They also tell of men who came to the job and thought it was a piece of cake, who sat around drinking tea, reading, falling asleep. But the

job got back at them, the plant went off line and they left. (Nichols & Beynon, 1977, p. 19)

Those who tried to read when the plant was running well were criticized by foremen because they were not getting paid to read but--to work. After all, they were on "company time," and company time meant that they were not--persons, but mere workers.¹²

Other illustrations of the principle of how the internal dialectic of the quantitative determination of value and its effects on life at work could be given. Consider, for instance, the issue of whether voiding is company time or workers' time (Linder & Nygaard, 1998). In the United States, voiding is generally legally treated as a negative encroachment on company time. Human beings are hired by employers--to work, obviously. The need by workers to void is treated in various ways as a necessary evil. The extent to which workers, being organic beings, have had to suffer throughout the capitalist epoch because they have been treated, in one form or another, as pure labour time, is well expressed in the denial of the right to void on "company time." Employees, even quite recently, have had to suffer the requirement that they "hold it in." Women workers in one factory had to wear diapers since the employer would not let them urinate. Elementary school teachers, the majority of them women, have an inadequate number of assistants (due, undoubtedly, to restrictions in finances--monetary and hence quantitative

¹²The factory had a union, and there was a collective agreement. That the latter did not alter the essential relation should be obvious. Management permitted job rotation and was versed in the most up-to-date managerial ideology concerning the humanizing of the workplace. For the view that collective agreements do not alter the fundamental subordination of workers to employers, see Glasbeek (1982).

considerations), so that many either have to line up their students up and have them wait while they void or defecate, or they simply "hold it in." There are negative physiological consequences for "holding it in," especially for women, but this issue does not receive much notice by most intellectuals, who do not suffer from such things. These "little" things count in the struggle against the employer's attempt to reduce workers to mere labour or "company" time.

Again, a worker in a meat-packing plant in Sioux Falls, South Dakota, uses the concrete means of production to produce meat (Salgado, 1993). Simultaneously, his capacity to use those means of production is itself used to produce the maximum quantity of meat in the minimum period of time. The means of production are, in effect, used by the employer to obtain the maximum amount of human labour from him in the shortest possible time. This use, of course, is quite different from the concrete use of the dead pigs, the hooks, the buildings, the machines and so forth which the meat worker uses, but it is nevertheless still a use. From the immediate supervisor of the meat worker to the CEO of the company, a hierarchical superstructure is erected which is designed to ensure that the direct use of the means of production does not deviate from this purpose (Henry, 1983). The hired meat-packing worker, from the employer's point of view, exists merely as personified labour time, as an attribute of labour, not labour being an attribute of him (although, concretely, it is his activity, like that of the activity of any other animal). The means of production are used to obtain as much work as possible from him. "Company time" expresses quite succinctly this conception of a human being's life being reduced to an attribute of the employer. The employer, as an employer, exists to obtain as much

work as possible from the set of individuals hired at the lowest cost possible in order to maximize output and M' .

Similarly, in Serra Pelada, in the state of Pará, Brazil, 50,000 gold workers search for gold (the gold is used to pay off a small fraction of Brazil's foreign debt) (Salgado, 1993). Their capacities are restricted in order to obtain gold at a minimum cost; the workers receive an average of twenty cents for carrying a sack weighing between 65 and 130 pounds.

An oil worker in Kuwait works twelve-hour shifts (Salgado, 1993). This worker's overwork is typical of the accumulation of capital; the cost of hiring an extra worker is often more than the cost of paying overtime. Overwork on the one side frequently results in unemployment on the other side in capitalist regimes.

Another example would be a woman worker in Mexico who uses a microscope to solder parts (Prieto, 1997). Simultaneously, the employer restricts her capacity to use microscopes in order to obtain maximum production and maximum profit. Her well-being is quite irrelevant except in so far as it affects profits. Her own health is sacrificed by having her own activity restricted to a limited use of the means of production.

When used concretely, then, the cost of production of machines and other inputs (material objects) is irrelevant. When used abstractly, as a means to obtain greater exchange-value (a surplus value), the material use of the means of production, which forms the basis for educational development for both Dewey and Marx, becomes inverted so that the capacities of individuals, instead of flowering, become stunted and wither. The means of production, when converted into capital, have grafted onto them a different

purpose (Henry, 1983). The purpose of the use of the means of production changes from a concrete purpose of specific consumption to an abstract purpose of the general and constant accumulation of abstract exchange-value on an ever increasing scale. The concept of the potentiality of technology as materialized knowledge is no longer applicable to the user because what becomes important is maximum production. The potentiality of technology to enrich the user is changed into its opposite: it is used to restrict her capacities in order to maximize the quantity produced in the shortest possible time. In other words, the development of the capacities of the material consumer of the means of production is sacrificed for the maximum increase of production and profit. The user of the means of production, who naturally does not relate to the means of production as produced objects but as presuppositions for her own activity, is now forced to relate to them immediately by her employer and mediatedly by the general structure of production as costs of production or expended labour time (Postone, 1993). She herself becomes a cost of production for the purchaser of the only “thing” she has to sell: her labour power, or capacity to perform human labour. Instead of her using the means of production in such a way as to develop her capacities in different directions (such as synthetic understanding of the processes involved, or in the transfer of her knowledge to other domains), the means of production are used abstractly by the employer to restrict her capacities and to increase output to the maximum. The means of production develop while the capacities of individuals wither because of the abstract use of the means of the production. Intellectual labour becomes embodied in the means of production as an

objective process through the subordination of science to the dictates of capital {31}.¹³

There is thus a dual process which entails the use of machinery and other objects by people who change the material world in which they live as they change (educate) themselves through the widening of their relation to nature, and the other an opposite movement, where the individuals become almost the object and machines almost the subject (personification of the means of production), with many individuals becoming less developed and the materially produced world becoming more developed as the process proceeds. This process does not prevent certain privileged workers from developing their skills as the capitalist use of the means of production proceeds, but the general trend is toward the restriction of skills in order to serve the needs of the accumulation of surplus value and hence is attributable to the abstract capitalist use of money and means of production for the purpose of obtaining more exchange-value.

The principle of capital is thus the reduction of humans to pure quantitative labour time; the workers are mere blobs of quantitative labour time. Since Marx subtitled his work "A critique of political economy," his reference to abstract human labour as the basis of wealth was meant to be a critique of this principle by showing its operation on human beings at work and in the reproduction process of capital. Marx explicitly referred to the labour which creates (exchange-) value as a relative concept {32}. That human

¹³An interesting exercise would be to compare Marx's theory of the development of the independence of capital from labour in the form of machinery--a contradictory development since labour is the ground of capitalist wealth--and Marx's analysis of Epicurus' theory of meteors and Marx's interpretation of the function of that theory within Epicurus' own system. See Marx & Engels (1841/1975a).

beings are not mere quantitative blobs of labour time does not prevent the capitalist from treating them that way {33}. The social structure of human labour itself under bourgeois rule entails this treatment of human beings as mere labour time.

Against Ricardo and other classical economists, for Marx commodities did not possess quantitatively determined value because of their nature but because of a determinate social structure. It is because Ricardo treated the specific kind of labour which produces value (a determinate relation limited in application to a determinate form of society) as identical to concrete human labour (a general or transhistorical abstraction, applicable to all human societies) that Ricardo felt no need to connect value with its phenomenal form, exchange-value. Concrete labour finds the expression of its character in the determinate form of the output; concrete labour which produces beer expresses its determinate nature in the form of beer. If the labour which produces value is identified with the concrete labour which produces use-values (or the beer), then the essential connection between the kind of labour which produces value (ultimately, the capitalist form of wealth) and thus exchange-value is obscured. Ricardo abstracted entirely from the link between exchange-value and value once the former had been reduced to the latter.

The question of the relation of value (which is relative to concrete labour and to other forms of society) and exchange-value must now be analyzed; this could be considered the external dialectic. Output in a capitalist society has a value in so far as it is the product of abstract human labour. It also has a use-value in so far as it is the produce of concrete labour and serves some need. The unity of value and use-value is the

commodity. Without the "property" of being the result of abstract labour, the commodity would have no value. But the "property" of value is itself a result of a certain way of organizing social labour. A certain social structure makes a commodity have value; the property is the result of a certain organizational form of the labour process. Being the result of abstract labour makes output a commodity, but since the commodity is also the result of concrete human labour, abstract human labour as the value-producing substance cannot be identified with the commodity as such since the commodity is a particular thing (a use-value). However, despite the commodity possessing value, the value still has no being. Murray (1988) comments on this particular point, which has to do with the Hegelian logic of essence:

In this light we can see why Hegel writes that "the essence must appear." It must show itself in something that is not immediately itself, precisely because it has no immediate existence--its logic is not the logic of being. It is logically necessary for the essence to appear, because what it is reflects immediate being. Under this dialectical (or internal logical) conception of essence and appearance, science is no longer a one-way street that externally relates appearances to the essence, but works both from the appearances to the essence and from the essence to the appearances. (pp. 133-134)

Money is the uniform expression of the being of value and the independent form which constitutes the point of departure for capital (Marx, 1867/1977a; 1884/1977b).

Commodities which do not manage to become transformed into their pure objective value rot and waste (including, of course, human beings as sellers of the commodity labour power).

Since the output is not yet a part of the whole, it is a mere potentiality. This potentiality, if it is to be a reality, must find being, but since its being is not expressed in

the use-value to which the property is linked, its being needs to be expressed in another being different from the being of the use-value which possesses the property of value: "I cannot, for example, express the value of linen in linen. 20 yards of linen = 20 yards of linen is not an expression of value. . . . The value of the linen can therefore only be expressed relatively, i.e. in another commodity" (Marx, 1867/1977a, p. 140). The property of being social labour can then only be expressed in another, mediately, not immediately in the form of the concrete output. The concrete use-value must "fly away" if the commodity is to function as value {34}.

This aspect of the dialectic of concrete and abstract labour may be termed the external dialectic. External or exchange-value is measured quantitatively through cost accounting; the latter may be considered the external form of measurement of value for capitalists, or the form in which they consciously function. For example, a manager at the petrochemical factory, Edward Blunsen, epitomizes this quantitative treatment of human beings and the means of production:

However, Blunsen is more than a 'technical man', narrowly defined. Whether he is talking about how much the chairman earns, who in the management structure can assess who for what grade, describing the several little ways in which the grades can be made 'flexible', or explaining how 'loss accounting' works--whatever it is, if it's technical or financial he has the details at his finger tips. In his mind the numerical world is inexorably linked to capitalist rationality--to the accountancy of profit and loss. Production figures, sight values, financial estimates for plant modifications and how much they would save the company, these are the staple diet of his conversation, and life. (Nichols & Beynon, 1977, p. 36)

The conscious forms in which capitalists and their representatives function is epitomized in the reduction of the human labour process to one of profit and loss. However, workers

share many of the same forms of consciousness as the capitalists. They are not immune from the fetishism of commodities and of capital.

3. The fetishism of commodities and of capital

The internal and external dialectic result in various forms of fetishism, which conceal the nature of capitalist society. Since the social characteristic of human labour is split off from the material production process, its appearance assumes the form of a relation between things rather than persons {35}. Commodity fetishism expresses the quasi-independence of the total process of production from the material producers (Marx, 1867/1977a; Postone, 1993). Both capitalists and workers are subject to this fetishism. The money form, being an immediate relation between things, conceals the human relation of workers producing for each other. Even before Marx's analysis, critics of capital noted this phenomenon. Hodgskin was perhaps the first to address this issue (1825/1963).

Since the social characteristic of labour is not attributable to the concrete workers as they work, this attribute appears to be the attribute of capital, not that of the concrete workers who actually use the means of production in a physical sense. To put it another way, there are two subjects in capitalist production, the subject called capital and the subject called labour. Capital as personified capital is the capitalist, and he usurps the social attribute of labour as his own power.¹⁴

¹⁴As capital develops, the various functions of capital become dispersed among different individuals. See Mathiesen (1980).

The social function of producer emerges in an alienated form as the capitalist. The material producers, not producing for each other directly, need not appear to be real (material) producers (although they are). The characteristic of their labour being social labour only potentially rather than in actuality results in a dissociation of the functioning of that labour in its concrete material activity with its contribution to society. The part, not being part of a whole qualitatively in its actual functioning, can then appear as the attribute of the capitalist firm because the concrete labour has lost this immediate attribute. It appears to be the case that these workers in their material production as they actively transform inputs materially into output do not produce a social product since the latter only becomes a real social product in the process of exchange {36}.

In steps the capitalist, who purchases the means of production and the labour power, uses it in the Aristotelian sense of a means for an increase in exchange-value during capitalist production, and sells the resulting commodity for a profit. It is the capitalist who represents the producer both during production and in the form of the seller of the commodities.

Since concrete labour in its actual functioning, even when performed by many workers in an organized fashion in a capitalist factory, is not social labour, or is not linked to the labour of others in the division of labour in society by the workers themselves, the labour performed, even if increasingly it is materially social labour by having many workers working together in an organized fashion, does not display its social characteristic in the act of labour itself. The social character of labour no longer functions as part of a whole qualitatively even if materially it is increasingly social labour.

Since the material transformations during the concrete labour process do not result in or coincide with the expression of the social character of labour, material production which increasingly displays social characteristics is not expressed either.

Labour as part of a whole of labour, as a part of the total process of reproduction of capitalist society, manifests itself as part of a whole outside the material process of production. It is pure labour, labour independent of its specific material conditions, which produces capitalist wealth. The social character of the labour does not manifest itself in its natural form, in the result since the material process is not yet a social process. Since the social characteristic becomes social outside the production process (in the exchange process), the social characteristics of labour--all its powers as social labour--appear as the powers of capital and its personified process, the capitalist. Hence, a struggle is required if workers are to exert themselves as the real subject in opposition to their opposite, the capitalists and their representatives.

The wage form also makes it appear that the value of the worker as a cost of production is equivalent to the value produced by the worker. The wage varies with the amount of hours worked so it seems that it is a function of the quantity of hours that the worker works rather than a function of her cost of production as a wage worker. The wage form makes it appear in effect that the value of what the worker produces and the value of what the worker receives are equal. This appearance then hides exploitation--the process whereby more human labour is obtained than is necessary for the reproduction of the immediate producers through control over the conditions of production. Since the value received and the value produced appear to be an identity, the source of the surplus

value appears to be elsewhere, in the material powers of the machines as such or in the virtues of the capitalist rather than in the result of workers learning to produce a surplus collectively through a long process of historical development. The source of the surplus is the social power of labour, a power which is the product of history.

Even the material relations between workers assume an alienated form within capitalist production itself. The employer usurps the collective material capacity of workers to act as a collectivity; their capacity as a social unit appears to be, not their own capacity, but that of the employer since the alienation of labour power results in the loss of control over one's potential capacity before the exercise of that capacity is part of a collective unit in its actual functioning {37}.

This usurpation has a material basis in that all collective or cooperative labour requires coordination for it to continue; this coordinating function has grafted onto it the function of capital to treat human beings as pure labour time (Henry, 1983). It results in a dictatorship of capitalists and their representatives over the workers, a dictatorship which appears to be a material necessity rather than a social construction based on a specific way of organizing human labour {38}.

The false appearance of the capitalist being the subject of material production then results in an even more fetishistic form when the process is continuously repeated. The capitalist who has initially invested her money needs to consume; her initial investment ultimately will be consumed completely. However, capitalists advance money with the intent to obtain more money (in contradistinction to workers, who use money to purchase means of consumption). Assuming that he is successful at exploiting his

workers, the capitalist may eventually consume the equivalent of his initial investment and yet still have the same amount of money on hand as initially. Further investment represents in this case pure surplus value so that the workers receive money which, when viewed from the continuous process of the reproduction of capital, is the surplus value of workers (Marx, 1867/1977a).

In reality, a part of the total money invested to purchase L and MP is already realized surplus value of other workers in previous processes so that the exchange of equivalents is a mere sham when considered from the point of view of continuous reproduction. However, for both workers and capitalists, because of commodity fetishism, the wage appears to be an equivalent for the value produced by workers. The power to produce a surplus does not therefore seem to derive from social labour but from the mysterious power of money. Even the workers tend to attribute their own social powers to capital rather than to themselves.

The existence of circulation makes it also appear that surplus value is independent of production. Since the total reproduction process of capital includes both production time and circulation time (the time which a commodity exists on the market without being converted into its functional value form as money and its existence as money without being converted back into its material elements of production), the rate of profit will vary with circulation time independently of production. The turnover time, or the total time for capital to pass through its production and circulation phases, intensifies the fetishtic nature of capital because it makes the surplus value appear to be independent of

capitalist production {39}.¹⁵

Another form of fetishism which hides the true situation consists of relating the surplus value (s), not only to variable capital (v), but to constant capital (c) as well. The surplus value, when it is related to the value of the worker and the means of production, constitutes the rate of profit. The relation between surplus value (s) to constant capital and variable capital can be represented by either equation $c + (v + s)$ or $c + v + s$; mathematically the equations are equivalent although theoretically their meaning is quite different (Marx, 1894/1977c). The first equation relates the surplus value exclusively to variable capital while the second equation relates it to the total capital invested. When s is expressed as a proportion between s and v (s/v), the true relation is expressed as the rate of surplus value. When s is expressed as a proportion between s and (c+v), ($s/(c+v)$), the fetishtic form is expressed. When surplus value is related to the total capital, there arises a further illusion of surplus value being independent of labour {40}. Once again the surplus value may appear to vary independently of the quantity of immediate or direct labour required to produce a commodity so that the surplus appears to be derived from factors independent of labour; the rate of profit conceals the rate of surplus value and thus profit conceals the source of surplus value in the exploitation of human labour.

¹⁵Even Marxian economists succumb to this fetish on occasion. Webber & Rigby (1996), for example, have this to say about the turnover time in these terms: "Surprisingly, given the fact that turnover times have been so commonly ignored, the effects of changes in the time taken for capital to turn over are of the same order of magnitude as changes in the rate of exploitation" (p. 322). They look only at the positive impact of the turnover time, overlooking the negative limit which circulation necessarily imposes on production time. The turnover time includes circulation time and therefore contains within itself a limit to production time.

The above fetishism involves a change in the relations of s to the input without any quantitative variation of s . Another fetishism involves an actual divergence between s produced by a particular branch of capital and the distribution of s to those branches so that there is a quantitative variation of s which appears to be independent of human labour (Marx, 1894/1977c). The different proportions in which the value of the means of production and the value of workers are distributed throughout the different industries make profit appear to arise independently of human labour because the rate of profit tends toward equality despite the different compositions of capital (the proportions between c and v). Different compositions of capital, with an equal rate of surplus value (s/v), will result in unequal rates of profit.¹⁶ However, capital, provided it has no barriers to entry or exit, will gravitate to branches where the rate of profit is higher and exit branches where the rate of profit is lower. The increase in supply in the former case and the decrease in supply in the latter case will decrease and increase prices in the respective branches of production until an equal rate of profit is achieved. This rate of profit does not, except on average, coincide quantitatively with the rate of profit in individual branches and industries. In other words, the amount of surplus value produced in a given branch or industry does not coincide with the amount of surplus value distributed in a given branch or industry. The relation between the production of surplus value and its distribution

¹⁶This fact can be derived from the two determinants of the rate of profit: the rate of surplus value and the organic composition of capital (the proportion of constant capital to total capital: $c/(c+v)$, or g). The rate of profit is $s/(c+v)$, or p . If the numerator and denominator are both divided by v , the result is: $(s/v) [v/(c+v)]$. Now, since $v/(c+v) + c/(c+v) = 1$, $v/(c+v) = 1 - c/(c+v)$ or $1 - g$. P is therefore equal to $s/v (1-g)$. P varies directly with s/v and inversely with g (Desai, 1979).

through the competition of capitals further creates the illusion that surplus value is independent of labour.

A further development of fetishism is in the form of interest. Interest appears to arise from the act of lending not only independently of human labour but quite removed from the production process itself. Its form is M-M'; money generating more money {41}.

The appearance in capitalist society is that capitalist wealth is independent of human labour; the truth is otherwise.

4. The truth of capital and the truth of social being or human nature

Ironically, this truth of labour being the source of value is presented by many Marxists as the only truth relevant to a Marxian critique of capital. However, this truth is relevant because in capitalist society human labour is the only source of capitalist wealth but not the only source of material wealth. The point of understanding the truth that labour is the sole source of capitalist wealth is not so that workers can honour the truth, but so that they can change it. In the first place, the first phase of a communist society would abolish the disjunction between social labour and concrete labour {42}. In the second place, exploitation would be abolished to the extent that the amount of labour performed--now social labour during the material production process--equals the equivalent amount of labour required to produce the means of subsistence withdrawn by the individuals (Marx & Engels, 1978). However, despite these advances, production and distribution would be linked by labour and hence this relation would still be an expression of a bourgeois measurement {43}.

In a higher phase of communist society, production and distribution would be disjoined. Human need would not be tied to the amount of labour one contributed to society. Labour would no longer be the basis for the creation of human wealth. It is in such circumstances that the principle of each according to her ability, each according to her need could be applied. The point about knowing that human labour being the foundation of capitalist wealth is to change it.

Marx based this view once again on the dual theory of labour. It is related to the nature of the material world in which human beings live: human labour, although tautologically the defining characteristic of a human labour process, is still only one element that contributes to the production of material wealth or the concrete labour process (as opposed to the abstract labour process). Marx commented on the determinants of the productivity of labour which determines the production of concrete use-values. The concrete (material) labour process produces use-values, and the quantity of material output varies according to the level of productivity. Concrete wealth has many determinants {44}.

The production of (exchange-) value, by contrast, is a result of abstract human labour; only human labour produces value. There is only one determinant: "But the value of a commodity represents human labour pure and simple, the expenditure of human labour in general" (1867/1977a, p. 135). Marx reiterated this point in several places in Capital {45}.

The relation between concrete and abstract labour is contradictory {46}. This contradictory movement (or the dialectic of the one and the many) forms one of the

grounds for the opposition of the working class to capital. The capitalist structure functions to measure all things in terms of abstract, homogenous human labour, but the material world is heterogenous, not homogenous.

This contradiction was not developed in the infancy of capitalist production. The material basis for specifically capitalist production was a result of capitalist social relations. Marx, for example, distinguished between the formal subsumption of labour by capital, whereby the workers came under the domination of capitalists without any change in technology, and the real subsumption of labour by capital, whereby the material form of technology assumed a form more appropriate to the abstract class relation of capital {47}. The technical conditions of production did not fundamentally change under formal subsumption of labour under capital. Nevertheless, capital itself and its nature as abstract labour presupposes the separation of the needs of the purchaser of labour power and what is produced. The formal subsumption of labour already expressed a wage relation qualitatively different from the wage relation which existed in earlier times. If output were tied to the personal needs of the immediate producers or to the personal needs of the ruling class, output would never have been quantitatively extended the way it has and science would never have found a concrete foothold. Marx himself noted the confusion arising from a lack of distinction of the capital relation, based on impersonal relations, and relations based on personal services {48}.

Once the capital relation (which itself presupposed certain material conditions for its emergence) had gripped production, the real subordination of labour by capital became possible and was a result of determinate social relations of production, not technical

relations as such. The real subsumption of labour under capital arose when the capitalist relations of production began to affect the technological conditions in such a fashion as to reflect the relative autonomy of the development of the means of production from human labour; the results of past labour became a means of converting human beings into pure labour time, but they could only do so if their material form broke free of its material limitations as a material extension of human labour (especially the hand) {49}. Marx specifically linked the industrial revolution to the freeing of the processing of raw material from the limits of the human hand {50}. It is the transformation of the working instrument of production and not the motor mechanism or the transmitting mechanism which formed the basis for the capitalist revolution in technology.

The reason for defining a machine in contradistinction to a tool in terms of the working mechanism is due to the potential for radically increased productivity independently of human labour (a contradictory aspect of capital since capitalist wealth is measured exclusively by human labour, but in order to produce capitalist wealth capital must become materially more independent of human labour). With a tool, capitalist production is limited by human labour itself in its concrete aspect as an extension of the physical organs of the body: "The number of implements that he [the worker] himself can use simultaneously is limited by the number of his own natural instruments of production, i.e. his own bodily organs" (Marx, 1867/1977a, p. 495). On the basis of human labour limited to the natural organs of the body, capital cannot develop its nature as an independent power vis-a-vis labour. With machinery, it can: "The number of tools that a

machine can bring into play simultaneously is from the outset independent of the organic limitations that confine the tools of the handicraftsman" (Marx, p. 495). The impersonal nature of capitalist production can then develop on the ground of a more general material basis.

It is only through the impersonal relation of classes whose needs are divorced from the immediate production process (with the consequent separation of production as such from exchange, distribution and consumption) that a technological dynamic becomes in-built into production. Output, not being related to either the needs of the immediate producers nor the immediate appropriators (capitalists), can be increased without the personal limitations of the basic relation. The social power of combined human labour, expressed in its most developed form through science and its application in large-scale production, can arise and develop. To do this, however, a revolution in the material conditions of production is necessary.

Science and its application develop rapidly since capital requires general (impersonal) knowledge to develop. It subordinates them to its impersonal process. The structure of material production, as a consequence, changes as capital develops. Human labour becomes less and less the material productive force, and machines become more and more the material foundation of the production of material wealth. The measure of human wealth in terms of human labour becomes anachronistic as the material reproduction of human life is limited to functioning for the capturing of as much human labour as possible {51}. So long as labour time constitutes the measure of value, economic crises arise as a temporary solution; this solution, of course, causes suffering

from a working-class point of view (unemployment, increased subjugation to capital, and so forth). The solution to the problem is to shift the reproduction of life to a different basis, a basis which reduces work to being an attribute of human beings, not the attribute. The latter had its material basis in early capitalism, when human labour formed a large part of the production of industrial output, but with increasing automation, the material ground for the continued existence of capital and its measure of wealth becomes less and less firm. Marx thus believed that this movement tended to lead to its own negation {52}. This change is the result of the dual use of things in a capitalist society. Of course, as long as labour continues to be the measure of (exchange-) value, the contradiction between the material relations of production and the social relations of production based on the dual process of capitalist production will likely lead to an increase in human suffering as unemployment increases, overwork proceeds apace and capital increasingly spreads its grip over the entire world.¹⁷

The clash between the relations of production which confine life to one quantitative measure and the determination of the measurement of output by aspects of the material production process which cannot be reduced to the quantity of labour required to produce them--ultimately to the requirements of human life itself--leads to disturbances in human life. It is the workers who suffer the immediate effects of the contradiction. This contradiction--reducible to its source in the antithesis between

¹⁷The question reduces itself to whether social relations can take priority over material relations or whether material relations must ultimately take priority over social relations.

concrete and abstract labour--can be said to express an alienated community.

5. The alienated community as crisis

Barbalet (1983) focuses on the issue of the sociological nature of Marx's mature concept of the alienated community without specifically linking it to the twofold character of labour. According to him, Marx's approach to the community or society as expounded in his Economic and Philosophical Manuscripts of 1844 differs radically from that of his later writings, beginning with his The German Ideology. Marx appeared to be criticizing the liberal view of society as constituted by a set of independent individuals in both works. However, Barbalet categorizes two different critiques of this liberal view.

The first or normative view accepts the liberal description of autonomous individuals, but posits society as a normative concept by which present relations can be criticized. Present liberal reality is, on this normative view, anti-social. It needs to become social if individuals are to achieve their true essence as social beings. The second view considers social relations to be irreducible to individuals (the sociological view). Barbalet contends that the early Marx shared a somewhat similar view to the normative view. Whether the early Marx did have such a normative concept of society is a moot point here. The point to be emphasized is that Barbalet considers that the later Marx used a different concept of the community, a sociological concept. Relations between individuals are not considered unsocial even if intent or conscious striving is based on unsocial or private interest. The community exists even under capitalist rule. The question then becomes: how does it exist, or how does the alienated form of this community

express itself. Part of Marx's answer has already been given above in the form of the fetishized forms of commodities and of capital. Another form which expresses the alienated community, perhaps most poignantly, is the crisis. The crisis is the form in which the unity of the alienated community, which has functioned relatively separately and independently since human labour is not social labour as it is being performed, asserts itself. The community or the unity expresses itself through destruction. The dependence of all on all reveals itself through the crisis.

In the general formula for capital, $M-C-M'$, the purpose or telos of the process is an increase in value: $M'-M > 0$. This purpose or final end provides unity to the process. This unified process, however, is split into two relatively independent acts in space and time, $M-C$ and $C-M'$ so that the unity is initially interrupted. This split into two separate acts opens up the possibility of their functioning independently of each other. Since the parts are, however, just that, parts of a whole, the parts must, on occasion, be forced into a unity or an alignment with the whole of which they are parts {53}.

A similar process occurs in the circulation of commodities, but in an opposite order. Commodities are converted into money, and then the money is used to purchase commodities: $C-M-C$. The purpose of the total process is the social (not material) conversion of one commodity into another. Once again, though, the total process is split into two relatively independent processes (Marx, 1867/1977a). Regardless of which circuit is considered, since the whole is composed of parts which function as if they were wholes, the fact that they are parts is resolved through force in the form of a crisis. This total process is necessarily independent of the control of all individuals engaged in

it {54}.

The possibility of the unity of the capitalist community becoming separate increases since the function of money as a means of payment rather than as a measure of value and means of exchange assumes greater prominence as capital develops. Money in its role as a means of payment (the transfer of the value of a commodity after its use-value has already been transferred at an earlier date) assumes increased importance under capitalist conditions of production. Credit (and speculation) has as its presupposition this function. In effect, the process M-C (purchase of the commodity) is realized before C-M (sale of the commodity to purchase a commodity). When debts fall due, the conversion of commodities into money is no longer to obtain another commodity on the market but to transform the commodity into money as such. Money as the absolute alienated form of society then comes to the fore. It is money as money that is needed, not money as measure of value or means of exchange.

As credit develops under capitalist conditions, the interdependence of the different capitals becomes increasingly enmeshed so that a bankruptcy at one point may have a domino effect on many other capitals {55}.

Moreover, the reproduction of capital always requires a balance between its production phase and its circulation phase. However, the very nature of capitalist reproduction, which necessarily requires the functioning of concrete labour separate from its functioning as social labour in the form of money, is such that the reproduction process can easily break down (unless steps are taken to transfer the crisis to the future, in which case the future becomes increasingly a whirlwind of possible and in all likelihood

actual crises). The reproduction process of capital requires both the material and social elements of production to be taken into account, and the excess or lack thereof in corresponding quantities of values and material wealth can result in a general crisis. For example, material reproduction must occur within a specific period of time if value is to increase itself. If the commodity capital (C') takes too long in its conversion to M', increases in the price of raw materials or labour power can prevent the purchase of the material conditions for the reproduction of capital (the transformation of M into C). The accumulation process of capital is stopped dead in its tracks (Marx, 1861-1863/1968). Since various capitals are interrelated, a general crisis may ensue.

Alternatively, the accumulation of capital proceeds at so fast a pace that there is a plethora of capital. Wages and the price of raw materials rise since the demand is strong relative to their supply. The rate of profit will decrease. The rate of accumulation will decrease, increasing the likelihood of a crisis.

Other sources of crises arise from the substitution of c for v . Since surplus value is derived only from v , the rate of profit has a tendency to decline since the organic composition of capital tends to increase faster than a rising rate of surplus value (because there is a limit to the increase in the rate of surplus value), thereby overlapping other forms of capitalist crises (Marx, 1894/1977c).

Even the best bourgeois economists, such as Ricardo, faltered by not analyzing the dual nature of labour under capitalist rule and consequently denied the possibility and actuality of general crises under capitalist economic conditions. They identified the specifically capitalist mode of production--the abstract labour process and the production

of value--with production as such or the concrete labour process and hence lacked an understanding of capitalist economic crises {56}. Since concrete labour is not social labour as it is being performed, and yet Ricardo and other political economists treated them as identical, they banished crises from bourgeois society. It is this distinction which Marx considered vital in demonstrating the alienated form of community in its most poignant form. It is this distinction which separates Marxian economics from the classical economic theory (and from Deweyan theory) because it provided Marx with an analytical weapon with which to criticize the bourgeoisie's pretention that capitalist production is absolute. The relative character of capitalist production and its inadequate form of community reveals itself in a crisis. The material needs of the community are sacrificed for the abstract need of capital to obtain a surplus value and to accumulate it on an ever-increasing scale {57}.

Intellectuals who fail to consider the significance of the specifically alienated form of the capitalist community will likely offer inadequate solutions to problems which emerge on the foundation of capital, or they will define problems only within the parameters of capitalist relations of production. Their horizons will be stunted, and their solutions will never resolve the fundamental contradiction between concrete labour being split off from its social characteristic. Their limited horizons are less easily subverted during boom conditions because the contradiction between material conditions of production and their social integument is more easily hidden during these periods, but

that contradiction comes to the fore during periods of crises {58}.¹⁸

The alienated form of the community becomes more visible because of the increased suffering brought about by the crises and because of the display of the destructive character of this alienated community. It is during a crisis that workers may not only revolt but seize the initiative because capitalists under such conditions, on balance, must destroy a part of the collective heritage of the species in order to continue to reproduce themselves as capitalists.

Although Dewey, unlike many modern reborn liberals of the individualist persuasion, was hardly blind to some of the contradictions of his own society, his theory was not equipped to deal with the peculiar nature of that society. He lacked a methodological basis for developing concepts necessary to grasp its specific nature.

B. Dewey's inadequate critique of capital

1. Dewey's inadequate methodology

As intimated in the first section of this chapter, Dewey followed an historical approach when teaching the present form of society. The Dewey school's curriculum expressed this approach. Parallels between modern capitalist relations and earlier relations were often made so that children would appreciate more fully the present. One

¹⁸The immediate occasion for the revolt in Los Angeles in 1992 was police brutality of minorities. It rapidly expanded into an expression of frustration at marginalization as capital has become increasingly international (Hirschl, 1997). Similarly, the 1994 Chiapas uprising, coinciding with the passing of the North American Free Trade Agreement, expressed growing opposition to the globalization of capital and the consequent sacrifice of human well being for the benefit of the god called capital.

example will suffice to show the problems associated with this approach.

It can be inferred that one of the reasons the study of the Phoenicians had been selected was in order to draw a parallel between the merchants of the past and those of the present. This parallel cannot be sustained. In the ancient world, the commodity circuit C-M-C formed the predominant form of commodity relations so that exchange--and money--functioned to mediate concrete human needs. Money capital did emerge, but its circuit M-C-M' remained external to the production process. The function of money as a means of payment was consequently restricted. Most of the output was not produced for exchange. The bulk of output was never converted into money. The development of the function of money as a means of payment led to the dissolution of relations of exchange, not to their development. {59a, 59b}. The modern merchant, however, assumes a relatively independent form through the two processes of M-C and C'-M', investment and sale. Since production is gripped by capital, the function of money as means of payment becomes more important. Credit relations become an essential aspect of the whole process since, among other reasons, workers provide capitalists with credit (free of charge). The same category--money--can have different functions in different social contexts (Marx, 1857-1858/1973). Despite Dewey's contention that organized adult experience differed from childhood experience, he assumed that an historical approach was sufficient for children to understand the present.

Dewey himself showed little evidence that he understood the specific nature of capital. For example, he fetishized commodity relations. He conjoined the meaning of an orange with its price (1916/1966). Dewey considered the "scientific adjustment of

taxation, efficient management of funds" to be "technical matters, as much so as the construction of an efficient engine for purposes of traction or locomotion" (1927/1946, p. 125). To equate the material construction of machinery with the manipulation of relations founded on exchange-value demonstrates the vast gap between Dewey's own understanding of capital from that of Marx.

Dewey rarely problematized exchange relations. When he did, he described them as anachronistic, dating from pre-scientific and feudal times. He never seemed aware of the necessity for a set of categories that would grasp the specific nature of capital by exposing its contradictory dependence on human labour as the measure of capitalist wealth. Ultimately, Dewey viewed the social world in unidimensional terms. He denied that there were "special forces outside the series of observable connected phenomena" (1927/1946, p. 36). Since value is a special, non-empirical force which arises because of the institutional structure of capitalist production, Dewey evidently would have opposed Marx's dual theory of labour.

Dewey did, however, have his own explanation of why society experienced problems despite the existence of modern machinery.

2. Lack of community: technology and cultural lag

Despite Dewey's historical approach to an understanding of capital, he, like Marx, criticized the society in which he lived. In the late 1920's and the 1930's, Dewey's criticisms of capitalist society took on increasingly trenchant forms. He noted the fragmentation of social life, the subordination of human life to profit and the wasting

away of the potential of human beings. Despite Dewey's apparent radical critique of capitalist society, the basis for his criticism needs to be analyzed.

Dewey considered a community to exist where a common interest was both shared consciously and used to control one's behaviour. Thus, a community is a community if its members are conscious of their being members of a community and use that knowledge to affect their behaviour: "The planets in a constellation would form a community if they were aware of the connections of the activities of each with those of the others and could use this knowledge to direct behaviour" (1927/1946, p. 25). Becoming conscious of one's associations creates a shared interest; the association between human beings is transformed into a community because the individuals alter their behaviour and change the association in light of the changed consciousness. As Barbalet (1983) points out, such a concept of community is normative. It can be critical because it measures something by what something lacks, but this form of criticism is distinct from a form of criticism which locates community as an alienated but real force.

Feinberg (1969) also implies that Dewey used a normative concept of community to criticize society. For Dewey, in so far as cooperation was not achieved consciously, there was no community. Brosio (1972) concurs with Feinberg. The community is lost in the face of the general forces of science and technology. The use of these forces has led to a breakdown in previous communal relations because no new habits corresponding to them have evolved. To restore the community, individuals would have to change. They would do so by bringing the problems faced by them in the modern industrial era out into the open and by attempting to resolve them rationally through discussion and negotiation.

With modern technology, there is material dependence as there never was before, with consequences which impact on many more individuals. The public, however, is nowhere to be found to mediate these consequences and to channel them into social and cooperative ends:

An inchoate public is capable of organization only when indirect consequences are perceived, and when it is possible to project agencies which order their occurrence. At present, many consequences are felt rather than perceived; they are suffered, but they cannot be said to be known, for they are not, by those who experience them, referred to their origins. (1927/1946, p. 131)

The community cannot find itself and hence cannot control itself.

Dewey's explanation for a lack of community was thus twofold: technological and cultural. Modern technology has disintegrated the old forms of face-to-face community but social relations between individuals have not caught up to the technological forms. There is a cultural lag based on pre-scientific, pre-technological feudal relations. Even commercial relations (and, by implication, the pursuit of profit) are anachronistic:

There are even some who regard the materialism and dominance of commercialism of modern life as fruits of undue devotion to physical science, not seeing that the split between man and nature, artificially made by a tradition which originated before there was understanding of the physical conditions that are the medium of human activities, is the numbing factor. (1927/1946, pp. 173-174)

Dewey, like Marx, refused to identify the use of technology as such with its specific use under capitalism. Unlike Marx, Dewey posited the non-correspondence between technology and social relations in external terms. The contradiction is between the requirements of modern technology and old habits handed down from a pre-industrial era:

When a certain state of accumulated knowledge, of techniques and instrumentalities is attained, the process of change is so accelerated, that, as to-day, it appears externally to be the dominant trait. But there is a marked lag in any corresponding change of ideas and desires. Habits of opinion are the toughest of all habits; when they have become second nature, and are supposedly thrown out of the door, they creep in again as stealthily and surely as does first nature. (1927/1946, p. 162)

In effect, Dewey took no cognizance of capital as a specific social relation.

Capital, to the extent that it is the pursuit of profit based on exchange relations, is an anachronism in relation to modern industry. It was a feudal relic, according to Dewey. Thus, Dewey noted the large gap in the distribution of wealth and economic security characteristic of the modern epoch. His explanation of these phenomena then linked them to private (individual) profit, but he considered the pursuit of private gain to be based on feudalism. He reduced the tendency to homogenization of life and hence the negation of the uniqueness of personality characteristic of the capitalist age (despite rhetoric to the contrary) to feudalism: "The fact is that the opposition of high worth of personality to social efficiency is a product of a feudally organized society with its rigid division of inferior and superior" (1916/1966, p. 121). Dewey considered capitalist relations--to the extent that he understood them--to be a throwback to feudalism; they represented a cultural lag. Dewey never presented any detailed analysis of the nature of capital in general.

In large part, Dewey restricted his critique of modern capitalism to a description of certain features of capital, such as the subordination of human beings, production, technology and science to the search for profit, the control of the means of production by a minority, the restriction of the capacities of the workers, and the unequal distribution of

wealth. Dewey was therefore not blind to the problems thrown up by the present form of society. However, by relegating these aspects to feudal or at least pre-scientific relations, Dewey never grasped the contradictory dynamic of capital. The possible gap opened up between the amount of concrete labour expended on production and the amount of social labour that the commodity represented provides a basis for revolutions in technology. These revolutions in technology, in turn, can clash with this social structure as modern technology replaces human labour and hence undermines the foundation for the production of capitalist wealth.

Dewey's conception of capitalism, therefore, contrasts sharply with Marx's conception. Human beings, from a Marxian perspective, cannot control modern technology because it is used in an abstract way by capital, a way which originally resulted in large increases in productivity but progressively becomes anachronistic. The Marxian conception of capital is a far richer explanation of why human beings are unable to control their lives than is Dewey's conception. Capital becomes anachronistic through its own dynamic and its own contradictory character and is not posited immediately and absolutely as contradictory to modern technology.

Dewey thus posited an absolute contradiction between science and technology, on the one hand, and relations which hindered its full use. He never saw science and modern technology emerging on the foundation of the impersonal relations of production characteristic of capital. For Dewey, it was the scientific revolution and its application in applied technology which formed the basis for the dynamic, not capital or property relations. Revolutions in technology would have happened on the basis of the scientific

revolution independently of capital (1927/1946). Dewey remained silent on how those who lived on the basis of pre-industrial tools and land were to be convinced of the benefits of science and modern technology without being forced to give up their tools and land through a struggle of classes. Related to his inadequate analysis of the nature of capital is his abstraction from power relations and relations of domination--relations of subordination.¹⁹ This lack can be seen in Dewey's technological determinism and in his abstract emphasis on cooperation.

3. Technological determinism

Dewey, in effect, was largely a technological determinist who viewed the use of modern technology in unidimensional terms. Dewey's technological determinism is expressed in his view of the connection between political democracy and technology: ". . . Invent the railway, the telegraph, mass manufacture and concentration of population in urban centres, and some form of democratic government is, humanly speaking, inevitable" (1927/1946, p. 110). Similarly, Dewey's technological determinism also comes to the fore in his contention that political unity is a consequence of material unity (1927/1946). He even tended to reduce conflicts to technological problems.

In the Dewey school, the drive for progress was purely technical; progress was purely a question of developing the correct technical solution to problems the collective faced in relation to nature: "Further, it was only through the invention of devices which

¹⁹Mathiesen (1980) makes a useful distinction between power and domination; the former refers to an act of will, the latter to the demands or imperatives of a social structure.

made for better living conditions, more efficient weapons for defense and the getting of food, that man had come to a more settled and secure way of living" (Mayhew & Edwards, 1936/1966, pp. 117-118). Dynamic technological change formed one of the bases for choosing the kind of past civilization to be included in the curriculum. Relatively static civilizations, like that of the American Aboriginal, were found to lack a dynamic of technological invention and hence became part of the excluded curriculum. Moreover, progress through class conflict and the sacrifice of some for the benefit of others were consciously excluded from consideration.

Dewey's presentation of the advance of human relations was rarely depicted as involving the development of the capacities of some individuals at the expense of others. As Karier and Hogan (1979) argue, the school did not systematically teach how technology was used in harmful ways historically as a weapon against workers during the capitalist industrial revolution.²⁰ What children learned in history, both theoretically and practically, was the positive aspect of the use of technology, but the voice of the workers who suffered and suffer from its use capitalistically need to be heard. The presentation of the origin of slavery likewise painted over the suffering of some associated with it and the simultaneous development of others on its basis. Aristotle would never have been able to write what he did if he had to devote his life to his own material reproduction on the limited basis of agricultural productivity at the time. Moreover, slaves were the most

²⁰Although their general conclusion concerning the sanitized version of history characteristic of the Dewey school remains valid, Karier and Hogan (1979) exaggerate. The issue of the demise of the hand-worker was brought up in the school (Tanner, 1997).

efficient form of labour in ancient Greece (De Ste. Croix, 1981). The emergence of Greek civilization presupposed the subjugation of one set of individuals to another set.

Nor do advances in levels of productivity through inventions necessarily translate into advances in civilization. Even if the possibility of producing a surplus exists--a basic condition for the emergence of logic, science and the arts practiced as independent activities of specific individuals--those who materially consume the means of production may produce only a small surplus to meet contingencies. If the latter were the case, no such emergence of a division of labour between material and intellectual labour would arise. Frequently, it has been necessary to force the material consumers of the conditions of production to produce a surplus. During the capitalist industrial revolution in England, for example, craftsmen did not work continuously as occurs today under capitalist relations. They would work feverishly for a while, then break off work and do something else as they had a mind (Rule, 1986). The rules of the early capitalists testified to the draconian measures needed to force workers to produce a surplus sufficient to provide for the personal needs of capitalists and their impersonal need to accumulate.

Dewey's abstraction from the importance of power relations and relations of domination in presenting the progress of the species contrasts sharply with their importance in Marx's theory {60}.

4. Abstract cooperation inapplicable under capitalist rule

Dewey's naturalism implied that dependence on nature required cooperation, and cooperation required the use of technology for the benefit of the collectivity. When there

was a lack of correspondence between the requirements of technology and the habits of human beings, what was needed was discussion to bring out the consequences of the collective use of technology so that the community could reconstruct itself and control the consequences of modern technology for the benefit of all:

What actually happens in consequence of industrial forces is dependent upon the presence or absence of perception and communication of consequences, upon foresight and its effect upon desire and endeavour. Economic agencies produce one result when they are left to work themselves out on the merely physical level, or on that level modified only as the knowledge, skill and technique which the community has accumulated are transmitted to its members unequally and by chance. They have a different outcome in the degree in which knowledge of consequences is equitably distributed, and action is animated by an informed and lively sense of a shared interest. The doctrine of economic interpretation as usually stated ignores the transformation which meanings may effect; it passes over the new medium which communication may interpose between industry and its eventual consequences. (1927/1946, p. 156)

Obviously Dewey took a backhand swing at Marxian economics in this passage. The problem for Dewey was not the specific nature of capital and its dual use of machinery but the anachronistic relations characteristic of a pre-industrial era, relations which prevented modern industry from being rationally employed for the benefit of all. The solution was to bring out into the open the consequences of the use of machinery so that a community could become a reality. Open discussion would dissolve old habits and new habits more in accord with modern technology would arise. The negative consequences of the use of modern technology could be overcome by developing democratic individuals who understood the impact of modern technology on their collective lives.

The problem with this formulation is that the very form of capital is a barrier to a

rational form of living and to rational discussion. The disjunction between concrete and social labour necessarily results in commodity and capital fetishism, crises and human suffering. These forms of fetishism themselves express an irrational society, where human beings are treated as things and things as human beings. Social relations between workers assume the form of a relation between things. Properties which are social appear to be natural properties of things. Capitalist wealth appears to be independent of human labour. Temporal relations between producers are such that human beings function for abstract labour time; a pressure to produce regardless of human need arises. When the production of surplus value falters, human need becomes irrelevant and humans suffer. In the topsy-turvy world of capital, irrationality reigns.

It is on the phenomenal level that capitalists function, not on the real relations of exploitation and the explicit bifurcation of social and concrete labour. There is no reason why capitalists would seek to investigate the real relations of production; indeed, it is in their interests to bury them beneath liberal rhetoric of abstract freedom.

In any case, capitalists do not directly react to changes in the rate of surplus value. It is the rate of profit that motivates them. For them, profit emerges from all parts of capital. The behavioural relations of capitalists are thus geared to the phenomenal forms. Such forms prevent rational discussion from emerging, and even if they did not, it is a question of abolishing these structures themselves, not attenuating their effects or consequences {61}.

Dewey did not see that the problem is the abuse of wage labour as such. Wage labour itself needs to be abolished if the abuse of human beings is to end. The Canadian

form of wage labour may remedy the Guatemalan form of wage labour, but it in no way remedies the abuse of wage labour as such. Of course, to address the abuse of wage labour as such presupposes that one understand the general nature of wage labour which in turn presupposes that one understand the general nature of capital. That is what Marxian economics addresses.

The use of technology in a double and yet contradictory manner involves relations of power and above all relations of domination. The use of technology for the abstract purpose of exchange-value requires the subordination of human beings to the past results of human labour in the form of money capital, constant capital or commodity capital. The particular form of that subordination may remedy one form of abuse of wage labour, but no form can remedy the necessity of that subordination. In Canada, for example, arbitrators of collective agreements have indicated that employees must execute the orders of their superiors or possibly find themselves accused of insubordination--a military term (Swan, 1982). Complimenting Brosio's observation (1994a) that Dewey lacked an adequate political theory, it could be said that Dewey also lacked an adequate economic theory.

Since Dewey did not analyze the specific nature of capital, his identification of the problem suffered from a one-sided solution. For Dewey, it sufficed to bring the conflict between the requirements of modern technology--and hence modern life--and old habits out into the open. Given Dewey's lack of a dual concept for the double process of using objects characteristic of capitalist society, though, it was almost inevitable that he would fail to understand the inherent antagonistic nature of capitalist society. Indeed, Dewey's

unidimensional conception of how objects are used led him falsely to equate the human species' attempt to deal with nature scientifically with the struggle against persons who disagree (Brosio, 1994a).

Philosophy, or the method of intelligence or democratic inquiry, according to Dewey, was to contribute to the resolution of conflicts through problem-solving, just as in the natural sciences. Like Marx, Dewey posited that reason or philosophy (a means) was to be used to try to contribute to the resolution of social conflicts (achieve an acceptable end goal or end in view) (Brodsky, 1988). Problems would be openly breached and defined, and common solutions to the specific problems sought (Colapietro, 1988). However, this method is applicable only when the distribution of power is relatively equal and when relations of domination do not arise. When the distribution of power is skewed, as in a capitalist society, conflict can be resolved through reason only if those in power deign to listen. Moreover, those in structural positions of power will often see no need to change since the situation corresponds to their interests. They will deny that the situation is problematic and refuse to engage in debate and negotiation (Brosio, 1994a).

What constitutes a problem will be more easily defined by those who control the working environment--the employers and managers. Similarly, solutions sought will tend to be in accord with problems defined by employers and managers rather than in terms defined by those who concretely use the means of production. Employers, managers and their representatives in the state (and elsewhere), of course, will resist the abolition of the abstract use of things for the purposes of obtaining a surplus of (exchange-) value. For them, there is an identity between the capitalist abstract use of things and the concrete use

of things. They have and will defend their view of the identity of material production and its capitalist form at all costs, including war.

Since Dewey did not systematically analyze the double aspect of use in a capitalist society, his proposed solution in his earlier works to the problems of capitalism--a call for democratic education in schools--was woefully inadequate and unrealizable within the parameters of a capitalist society. On the one hand, schools tend to function as democratic institutions, answering to the personal needs and development of the students who attend them because of various forms of struggle, including class struggle. On the other hand, schools are also subject to the imperatives of the capitalist market, with its emphasis on the acquisition of skills required for the market so that employers can maximize production and profit at the expense of the physical, intellectual and moral development of the future workers (Brosio, 1994a).

Dewey overestimated the capacity of schools to provide a democratic counterthrust to the imperatives of capital. Dewey, unlike Marx, thought that school could be a major means for changing capitalist society on a gradual basis (Brosio, 1994a). He failed to understand that his mode of inquiry would be checked because of the skewed power relations between capitalists and workers and the structures of domination. The dual use of things outside school would have an impact on the use of things inside school. Nor did he understand that there are certain interests which are irreconcilable; the working class and the capitalist class, because of their respective conditions and situations in the dual labour process, have different and indeed antagonistic interests (Brosio, 1994a).

Not surprisingly, Dewey's concept of class was therefore distinct from that of Marx. Class for Dewey approached the concept of interest group rather than a dialectical concept of mutually positing but simultaneously mutually exclusive and antagonistic groups of people (Campbell, 1988). For Marx, a socialist revolution would have as its goal the abolition of the capitalist class and the working class, not their mutual recognition (Ryder, 1988).

Dewey thus illegitimately abstracted from the social context of capitalism within which schools function; this context is far from democratic and is bound to impact on the functioning or use of schools (Parringer, 1990). Schools themselves become a site where the democratic imperative is limited by the capitalist imperative to accumulate objectified human labour.

His positing of democratic education as a major means for reforming capitalism and liberating the potentialities of individuals seems to put the cart before the horse. The democratic implementation of the method of intelligence (or democratic inquiry) requires the creation of conditions for its implementation. This will frequently entail an attempt at an organization of force in order to redistribute power and alter the relations of domination—class struggle (Brosio, 1994a). Dewey, however, logically, opposed class struggle since for him there was only one possible use of objects, based on the material (natural) world. Dewey was too much of a naturalist to agree to a Marxist critique of capitalism. He could not, ultimately, separate material production from its capitalist form.

It is true that Dewey became more radical. By 1927 he had realized that democracy was being undermined by industrial capitalism (Manicas, 1988). After the

collapse of the stock market in 1929, he saw the liberal goals of maximum freedom of personal development and the development of intelligence to be frustrated by the capitalist economy. In other words, he progressively realized that schools were fighting a losing battle against the imperative of capitalist profit (Brosio, 1994a). Even at his most radical stage of thought, though, when he recognized that schools could not be the site for radical change (Brodsky, 1988), Dewey refused to endorse the working class as the agent which would realize the preconditions for democratic education (Brosio, 1994a). He also not only failed to endorse the class struggle as the means of achieving them but opposed its intensification. His failure to understand that only human labour constitutes the foundation of capitalist wealth prevented him from assessing the situation realistically. His assumption that technology constituted the basis for progress abstracted from the immense suffering of those who have had their capacities restricted in the process of technological development under capitalist rule (and in other modes of production).

Dewey searched for the problems which limited human potential, but his solutions were largely restricted to the epistemological level (a change in consciousness) (Parringer, 1990). He did not consider a change in consciousness to require a struggle between classes since it is in everyone's interests to expose the anachronistic nature of old habits. The politics of exposure, however, itself requires a class struggle (Mathiesen, 1974). The truth of the nature of capital is hidden beneath layers of fetishized forms which have as their source the non-coincidence of concrete labour and social labour.

Dewey's democratic education, if it were to be really effective, would require a democratic society at the macro level, but Dewey failed to specify who was to realize

economic democracy, the real precondition for democratic education (Brosio, 1994a). Indeed, his concept of natural agency paid little attention to the social use of power in the development of experience (Parringer, 1990). Dewey vastly underestimated the power of the capitalist economy in undermining his democratic project (Brosio, 1994a).

Despite these limitations of Dewey's theory, teachers, as teachers, could use it in their classroom in order to open up a democratic space, but they should be under no illusion about the efficacy of their efforts, given the dominance of capitalism at the macro level (Brosio, 1994a). Moreover, they need to attempt to problematize the dual use of objects (including language) characteristic of capitalism in their teaching (Parringer, 1990). They need to understand the nature of capital in general and then its particular forms in concrete historical terms. Dewey, on the other hand, ultimately tried to integrate students into capitalist society, perhaps not consciously, but practically his program for intervention was reformist.

However, it may be said that Marxian economics, being written in the nineteenth century, is no longer applicable to modern forms of capitalism. Perhaps other classes or groups of people will form the basis for a solution to the problem of capital. Intellectuals are such a group of people. Perhaps some of them have produced a superior critique of capital. However, it is unlikely that they will form a basis for a solution to this problem. Many paint over the conflict between human beings being treated as things at work (negation of personhood). They cannot accept the irreconcilable differences in interests between workers and employers. Most may even deny that the economic situation of workers involves force (economic force, backed up by the executive force of the capitalist

state). Dewey was a rare intellectual, at least in his radical stage, who did perceive that force was characteristic of modern society:

That the control of the means of production by the few in legal possession operates as a standing agency of coercion of the many, may need emphasis in statement, but is surely evident to one who is willing to observe and honestly report the existing scene. It is foolish to regard the political state as the only agency now endowed with coercive power. Its exercise of this power is pale in contrast with that exercised by concentrated and organized property interests. (1935/1987b, p. 46)

Nonetheless, his own analytical apparatus prevented him from considering this force as anything but an anachronism inherited from pre-bourgeois times. He, like many other intellectuals, developed a theory which considered it possible to resolve class conflicts through formal conflict mechanisms which are part of bourgeois society. Unlike them, he would have considered the elimination of the employer-employee relation, not to be utopian as they would, but a possibility opened up by modern technology.

Many intellectuals are simply less observant and honest than Dewey was. They cannot face up to the truth of life in a capitalist society. They have many means by which to hide the truth from themselves. They create arguments which shield them from reorienting their personal life; it is doubtful that many intellectuals have changed their personal lives as a result of "rational" arguments. Quite to the contrary. Many intellectuals use arguments to shield themselves against the reality of bourgeois society.

Not many intellectuals concern themselves with employees as such in any serious fashion. Since being an employee is the fate of most people in the industrialized capitalist countries, this situation, one would think, would merit serious consideration. Quite to the contrary. When it is brought up, many intellectuals fly away from the issue of

whether wage labour as such is both an abuse and contradictory. Many are themselves embroiled in the identification of the transhistorical conditions necessary for all human life--means of production, concrete human labour and raw material--and its determinate form. They assume that the use of machinery in its capitalist form is the only possible way in which machinery can be used.

From a working-class point of view, then, many intellectuals do not want to dialogue about the nature of society in which we live; rather, they want to justify it or hide from it. Otto René Castillo, one of Guatemala's most renowned poets, wrote a poem which is applicable to the incapacity of many intellectuals to face the truth:

Apolitical Intellectuals

One day
the apolitical
intellectuals
of my country
will be interrogated
by the simplest
of our people.

They will be asked
what they did
when their nation

died out
slowly,
like a sweet fire,
small and alone.

No one will ask them
about their dress
their long siestas
after lunch,
no one will want to know
about their sterile combats

with “the idea
of the nothing.”
No one will care about
their higher financial learning.
They won’t be questioned
on Greek mythology
or regarding their self-disgust
when someone within them
begins to die
the coward’s death.

They’ll be asked nothing
about their absurd
justifications
born in the shadow
of the total lie.

On that day
the simple men will come,
those who had no place
in the books and poems
of the apolitical intellectuals,
but daily delivered
their bread and milk,
their tortillas and eggs,
those who mended their clothes,
those who drove their cars,
who cared for their dogs and gardens
and worked for them,
 and They’ll ask:
“‘What did you do when the poor
suffered, when tenderness
and life
burned out in them?’”

Apolitical intellectuals
of my sweet country
you will not be able to answer.
A vulture of silence
will eat your gut.
Your own misery
will pick at your souls
and you’ll be mute

in your shame. (1974, p. 8)²¹

It should be noted that Castillo pointed to the possibility of intellectuals to face the truth, not in themselves as a class, but only when confronted by members of the working class. Some intellectuals may be able to face the truth because of their particular life experiences or because of the theories they adopt, but by and large, intellectuals shy away from analyzing the employer-employee relation in general and the capital relation in particular. Even if they do, they rarely alter their lives as a result. Their life circumstances do not require them to resist the power of the employer as much as their subordinates (although that fact does seem to be changing as universities increasingly function more like corporations). There are, of course, exceptions, but intellectuals as a whole do not seek solutions to problems which they personally do not face. Indeed, since the division of labour makes it appear as if intellectuals are independent of material relations, intellectuals (including Dewey) overestimate the power of rational persuasion and underestimate the power of capitalists and the structural domination of capital. This does not mean that workers should not dialogue with capitalists; they need to do so out of a weak position. As their power grows, however, force rather than dialogue will increasingly become an option (Fisk, 1980).

Even with more reason would one look in vain to capitalists or their ideologues (which, of course, includes a subset of the intellectuals) to face up to the truth of the historical relativity of capital; they have no interest in attempting to resolve the problems

²¹Castillo fought with the Guatemalan guerrillas. In 1967 he was captured by the Guatemalan army, tortured for four days, and then burnt alive.

associated with the nature of capital as such. Quite to the contrary. Facing up to the truth of the relativity of the capitalist relation of production is not in the interests of the capitalist class, their representatives and their ideologues. The understanding of the relativity of capital requires a distinction between the transhistorical conditions which cannot be changed--they are necessary conditions for all human life throughout history--and the conditions specific to capitalist production, conditions which cannot be reduced to the transhistorical conditions. That distinction itself, however, and its development in theoretical form, constitutes a critique of the determinate form. The distinction itself implies that one understands that bourgeois society is not absolute.

Indeed, it could be said that it is in the interests of the ruling class to develop dispositions in students and workers which make them ill-disposed to face up to the truth of their situation and to develop dispositions and beliefs which identify the transhistorical conditions with the determinate conditions of bourgeois society.

There may be other groups which have a critical edge to their analysis (radical ecologists and radical feminists, as well as Aboriginal peoples, for example). Nonetheless, as Brosio points out (1994a), it is only the working class which has hitherto posed a real threat to the power of capitalists. No other group has ever approached the same level of threat to the interests of capital. It is still to the working class that a solution to the problem of capital needs to be sought. They are the interface between the transhistorical conditions of life (being part of the three elements of all labour processes--concrete human labour, raw material and means of production) and the social conditions of capitalist life. They are the basis for capitalist wealth. It is in the interests of workers to

expose the truth of capital; however, workers have to struggle against their employers frequently if they are to attain the truth. Theory can indeed aid in guiding them into determining the truth of their own situation and the nature of capitalist society because it can look at the dynamic macro situation as well as the micro situation and thus aid in penetrating the fetishisms of capital, but for workers to achieve this link between the micro and the macro and to penetrate the fetishism of commodities and capital, struggle against an imposed consciousness is necessary (Fisk, 1980). Struggle is a methodology which permits the stripping of the opacity of the bourgeois world. Otto René Castillo expressed this idea of a need for struggle:

Even beneath this bitterness

. . . Then understand my pain, and everyone's pain.
 If when I say "Bread"!, they say
 Shut up!
 And when I say: "liberty"!, they say
 Die!
 But I don't shut up and I don't die.
 I live
 and fight, maddening
 those who rule my country.

For if I live
 I fight
 and if I fight
 I contribute to the dawn.
 And so victory is born
 Even in the bitterest hours. (1974, p. ii)

Workers indeed did face up to the truth about being employees at one time. Before the civil war, in the United States, many "employees" considered their plight to be little better than wage slavery if being an employee were a permanent condition (Sandel,

1996). Indeed, one of the reasons why the civil war was fought was that some northern capitalists found that their "employees" equated too quickly the part-time slavery in the North with the full-time slavery in the South. Others fought against the South because they thought that slavery would prevent them from becoming independent proprietors. Only after the civil war did the labour movement begin gradually to accept the wage system as permanent; many still saw being a permanent employee as little better than being a slave. Especially with the closing of the American frontier in the 1890's, the labour movement began to accept wage slavery (euphemistically called the employer-employee relation) as a permanent feature of life --capital had for the moment won the battle. With the series of economic crises, beginning in the late 1960's, capitalists have increasingly attacked the working class; with the breakdown in the class accord, it is perhaps now once again possible for the truth of the employer-employee relation to be brought out into the open in the interests of the working class.

Conclusion

Dewey and Marx shared a materialist philosophy, in which the subject changes herself by using objects in a social context. For both authors, the internalization of natural forces through the development of technology permitted human beings to develop their capacities. Both authors, surprisingly, also posited the appropriation of previous human labours to be independent of the labour time required to produce them. In the context of meeting the basic needs of food, clothing and shelter, they viewed the process of appropriation as dynamic, simultaneously altering the capacities of human beings and the

environment or circumstances within which they lived. The development of the form and content of consciousness reflected this dynamic.

Even their methodologies, within limits, were parallel. Each author distinguished between the historical and logical approach. This distinction formed a ground for Dewey's philosophy and practice of education and Marx's critique of capital. Dewey attempted to link childhood experience to adult experience through this distinction without identifying them. The goal of linking them was to develop the experiences of children into a more organized form so that they could deal with the problems which they would face in the modern world as social beings and as unique individuals with their own aims and non-reproducible qualities. Dewey used his view of what constituted the ideal education to criticize the traditional schools, with their imposition of adult forms of experience on children.

Dewey's educational philosophy was put into practice in the Dewey school in order to create a harmony between the development of individual capacities and needs and social capacities and needs. The organization of the curriculum centered around occupations linked to the basic needs of food, clothing and shelter, with students engaged materially in the act of reproducing the lives of various civilizations in order to accomplish this goal. These various aspects of Dewey's philosophy and practice of education are quite consistent with Marx's materialist view of the human condition. In fact, Dewey's educational theory and practice provides a much richer elaboration of how to educate children in a materialist manner than does Marx's general critique of capital.

However, the critical aspect of a critical materialist pedagogy seems to be lacking

in Dewey's theory. Dewey did not apply his own methodological distinction between historical and logical experience to an understanding of capitalist society. In large measure he viewed the use of technology in unidimensional terms, explaining the disjunction between the potentiality of modern technology for liberatory purposes and the reality of the use of technology for profit in terms of the lost community brought about by cultural lag. Old habits merely had to be openly exposed and discussed since all people ultimately had an interest in exposing anachronistic habits which did not correspond to the needs of modern technology. Technology would ultimately rule the day.

Marx, by contrast, applied the distinction between the logical and historical analysis of capital to determine the specific nature of capital: concrete and abstract labour. The dual use of things leads to a technological dynamic which undercuts the ground of capitalist wealth. Human labour becomes less and less the basis for material wealth despite its being the basis for capitalist wealth. Human beings' material relations increasingly clash with capitalist relations. The production of material wealth becomes less and less a function of human labour as capital develops. The exposure of this anachronism is not, however, in the best interests of capitalists. The relative character of capital would be exposed, but it is in the best interests of capitalists as capitalists to present capital as identical to the general determinants of all production. They are aided in identifying the two through the various forms of fetishism, ranging from the simple fetishism of human relations assuming the form of a relation to things to the complex capitalist fetishism of profit appearing to arise independently of human labour. Exposure of the non-identity between the material conditions of production and the social relations

of production, however, is more likely during a crisis--a necessary feature of the alienated community, based on the disjunction between concrete labour and social labour and the consequent emergence of abstract labour and value. It is during a crisis that the opposition between the social relations of production and the material relations of production comes to the fore. It is the struggle between workers and capitalists that will determine whether the potentiality of technology for developing the capacities of all human beings will become an actuality or whether some human beings will develop their capacity at the expense of others. In fact, Marx's theory provides a much richer elaboration of why modern technology is not used for the benefit of all than does that of Dewey.

Marx's systematic analysis of the dual use of things in a capitalist society distinguishes his theory from that of Dewey and provides a critical materialist edge to social analysis. Dewey's theory, on the other hand, provides a materialist pedagogy relevant for teaching children about their material relations to the human and nonhuman world. Both together would provide a critical materialist pedagogy relevant to a critique of modern capitalism. A few examples of how a synthesis of Marx's and Dewey's theories in an educational context is possible will illustrate the beginnings of a sketch of what needs to be done if children are to be active subjects in a capitalist context rather than passive commodities.

Chapter 4. Praxis: an example of a critical materialist curriculum

Elements of a curriculum for a specific age group would go beyond the purpose of this thesis. However, a general overview is possible at the elementary level. To formulate even the beginning of a general synthetic curriculum based on Marx and Dewey, it is necessary to keep in mind two points. In the first place, conflict rather than cooperation needs to be incorporated into the curriculum, where appropriate. In the second place, the fundamentally different kind of society characterized by the dominance of capital needs to be incorporated into it.

The curriculum implemented in the Dewey school provides a general framework for a critical synthesis. The initial framework, based on fundamental human needs, occupations and an historical and geographical approach need not change. In other words, the structure or form of the Deweyan curriculum remains quite innovative and useful for critical pedagogues, but some of the content needs to be altered. Much of the curriculum, however, would be applicable as is. For example, reading and writing would be centered, as in the Dewey school, in the primary experiences of occupations: the observations of the children, their plays, and their attempts at reproducing the basic needs through diverse occupations. Similarly, the Dewey school's plan for integrating various natural sciences with the study of the provisions of food, clothing and shelter would not change. The learning of chemistry through cooking, for example, is an excellent way of integrating chemistry as a discipline with primary experience (experience which demands use of the senses and thought for concrete purposes in daily life) (Reed, 1996).

The needs of the household and the immediate occupations and processes

associated with it would still be applicable, but the difference between the concrete and social labour process within the household and the labour process outside, based on capitalist relations, would be given much more emphasis. Concrete labour in the household is also social labour while it is being performed. Visits to grocery stores, factories, and food-processing plants would permit children to discuss the differences and similarities between the material and social processes observed and those in the family. The social differences would also be brought out. Property relations at home and at work would be contrasted. The hierarchical relations characteristic of work would be compared to the work relations at home. Parallels and differences would be drawn through dramatic play and games. For example, the concept of unemployment could be reenacted through a board game of that name. The extent to which the concept of unemployment would be applicable to home life would provide an interesting point of comparison between the two areas of life.

A practical understanding of exchange relations would have greater weight in the curriculum so that the children would come to grasp the importance of this relation for their current life and its difference from all earlier relations of production. The function of money as a store of value, as a means of exchange and as a means of payment would be introduced into the earlier years in accordance with the capacities of the children.

Extending the horizon of children beyond the home, a visit to the farm and a discussion of farm life would provide the occasion for distinguishing different economic forms of the farm (self-employed farmers compared to hired agricultural workers). As in the Dewey school, older children could trace the different geographical sources of the raw

material. The students could research working and living conditions in the different places providing the raw material or other inputs (Building, 1989).

Centering on the concept of occupation, the employment relation as a relation characterized by the contractual form could be introduced; questions of the rights and duties of employees and employers could be broached. Exchange relations would thus form the initial topic. A discussion of the wages of the workers would provide practice in multiplication to determine the total wage per day; students could then discuss the degree to which such a wage would permit an individual or a family to live. A discussion of wages could also serve as a point of departure for comparing wages and salaries in other industries. The teacher could guide students into a discussion of wages and salaries of their own parents or guardians and the reasons for the differences (as indeed was done in Grade 4 in one class in Quebec) (Building, 1989). Students could conduct surveys of occupations and wages in the classroom, in the school and in the community. Bar graphs could be constructed according to the level of income earned. Children could also understand the concept of proportion, ratio or percentage by counting the number of men and women (or boys and girls) working at McDonalds or other fast food outlet near their home. Occupational structures could be graphed according to age or gender. Students could discuss issues of health and safety in the different occupations and whether there was a relationship between measuring a successful enterprise in terms of profit and the level of health and safety at work. They could also discuss whether there is a relationship between the level of danger and the rate of pay. Other areas of research would include the extent of the hierarchy in different occupations and the notion of ownership and the

difference between ownership of the means of production by investors and ownership of the means of consumption by employees.

Crime could then be linked to the issue of the form of ownership since, for practical purposes, it is crime against the property and persons of the working class which results in incarceration (Mathiesen, 1990; Reiman, 1996). What constitutes a crime, how it is defined and by whom, who does what to whom, sentencing practices and so forth could be a topic of the curriculum. More general legal relations, as well as moral relations, could then be connected to the previous topic. The curriculum could easily expand and change as the situation warranted it--a typical feature of the Deweyan curriculum.

This content of the curriculum would span the entire elementary curriculum, with specific topics to be distributed according to the level of development of the children. Its purpose would be to enable students to come to grips, at an ever deeper level, with the specific nature of the society in which they live. Teachers and administrators would have to possess an experimental attitude; the curriculum would change according to the needs and interests of the students and the availability of suitable material. Of course, whether a specific topic could be introduced would depend on the nature of the topic, the general and specific characteristics of students, the capacity of teachers to teach it and the availability of material resources.

Like the Dewey school, there would be a shift in the curriculum from a concentration on present occupations to past occupations; however, activities associated with appreciating the specific nature of current society would still form a part of the

curriculum each year so that knowledge and skills in comparative relations could be developed.

After having grasped practically and imaginatively some aspects of current occupations, students would study and reproduce prehistoric life; they would compare the extent to which it formed or could form a non-contradictory cooperative society. The forms of social life which distinguish the two would be gradually addressed. Barter relations and early forms of money would be considered and their relative weight in the importance of life would be compared to the prevalence of money in modern times. The students might study and use fire, and determine the difference between its functions in prehistoric times and its functions today. The hidden forms of fire in modern society could be contrasted with its more open forms in prehistoric times by using fire to produce clay pots and melt tin and copper to produce bronze tools and weapons. The importance of fire for human development and its incorporation into society would enable students to understand the importance of fire in their own history and its continued importance in their own lives since even today society is still a fire regime (Goudsblom, 1992).

The study of prehistoric life described above differs from the Deweyan curriculum only in emphasis; more emphasis would be in linking the past to the present. The next step, however, differs in nature from the curriculum of the Dewey school. The reason for introducing it is to provide a ground for understanding conflict and its role in advancing certain civilizations at the expense of others.

Instead of studying the Phoenicians, the students would first study the Maya, Aztecs or Inca civilizations (or other non-European civilizations). They would study their

writing and numbering systems, and their weaving, pottery and farming methods. Formal lessons in reading, writing and arithmetic could then begin because the social context would provide a social reason for learning these tools. The students would next study the Phoenicians and then move on to a study of exploration and the European explorers. The latter would be contextualized in terms of their subjugation of certain civilizations already studied to the power of some European nations and classes. The presentation of the explorers would be critical.²² Of course, the study of explorers opens up the area of the study of stars and constellations and their function in navigation. The students could construct an ancient astrolabe. Similarly, magnetism and its usefulness in constructing a compass for navigational purposes could also be studied, as could the topic of light in relation to a reconstructed telescope. Map reading and drawing could also form an essential component, as it did in the Dewey school. Recreating the voyages of the Europeans could be the point of departure for further study of the subjugation of one people for the benefit of another. The construction of the Egyptian pyramids by peasants and slaves, the flowering of Greek civilization and the simultaneous existence of slaves, the feudal system in Europe, the slave system in the United States, or even the capitalist industrial revolution in England could form logical links to the explorers. In this way, students would investigate the issue of whether civilizations have generally advanced independently through a combination of technological change and cooperation or through

²²Cassidy (1994) has an interesting map on page 29 which would be useful to compare with conventional maps or globes in this context. The tip of South America is on top, and Canada and Greenland are on bottom.

a combination of technological change, power relations and relations of domination and concomitant human suffering.

The two essential differences between the Deweyan curriculum and a critical materialist curriculum, then, would be firstly the emphasis on the importance of exchange relations and their connection to a different way of organizing human labour and the fundamental difference such a way of organizing human labour has on human life. Secondly, the question of whether civilizations have advanced only through technological change and cooperation, without sacrificing some people in the process, would be a key question and an organizing principle of the curriculum. Nevertheless, the general framework of the Deweyan curriculum would still be intact.

As Brosio has remarked (1994a), Marxists and other critical pedagogues would do well to appropriate the Deweyan curriculum, and the Deweyan and other progressive educators would do well to adapt the Deweyan curriculum to Marx's analysis of capital. With such a synthesis, it would be the children who would benefit by developing their capacity to understand, theoretically and practically, on the one hand, the historical and geographical roots of their lives and, on the other, its contradictory character. In this way, they can be empowered in a truly critical fashion by coming to grips with the nature of the past travails of human beings and their connection with the present domination of capitalist relations of production.

References

- Aristotle (1981). The politics. Rev. ed. Markham, Ont.: Penguin Books.
- Barbalet, J. M. (1983). Marx's construction of social theory. London: Routledge & Kegan Paul.
- Bernstein, R. (1971). Praxis and action: Contemporary philosophies of human activity. Philadelphia: University of Pennsylvania Press.
- Berti, A. & Bombi, A. (1988). The child's construction of economics. Cambridge: Cambridge University Press.
- Brodsky, G. M. (1988). Politics, culture and society. In W. J. Gavin (Ed.), Context over foundations: Dewey and Marx (pp. 77-118). Dordrecht: D. Reidel.
- Brosio, R. (1972). The relationship of Dewey's pedagogy to his concept of community. Ann Arbor, Michigan: University of Michigan.
- Brosio, R. (1994a). A radical democratic critique of capitalist education. New York: Peter Lang.
- Brosio, R. (1994b). Dewey as the schoolmaster for Marx's radical democracy. Philosophy of education [On-line]. Available: http://www.ed.uiuc.edu/EPS/PES-Yearbook/94_docs/BROSIO.HTM
- Building a people's curriculum: The experiences of a Quebec teachers' collective (1989). Ed. & trans. by D. Clandfield. Toronto: Our Schools/Our Selves.
- Campbell, J. (1988). Dewey's understanding of Marxism. In W.J. Gavin (Ed.), Context over foundations: Dewey and Marx (pp. 119-145). Dordrecht: D. Reidel.
- Cassidy, J. (1994). Earthsearch: A kid's geography museum in a book. Palo Alto: Klutz.
- Castillo, Otto René (1974). Apolitical intellectuals. In Guatemala (1974). Berkeley: NACLA.
- Castillo, Otto René (1974). Even beneath this bitterness. In Guatemala (1974). Berkeley: NACLA.

Colapietro, V. M. (1988). From 'individual' to 'subject': Marx and Dewey on the person. In W. J. Gavin (Ed.), Context over foundations: Dewey and Marx (pp. 11-36). Dordrecht: D. Reidel.

Derry, T. K. & Williams, T. I. (1960). A short history of technology: From the earliest times to A.D. 1900. Oxford: Clarendon Press.

De Ste. Croix, G.E.M. (1981). The class struggle in the ancient Greek world: From the archaic age to the Arab conquests. Ithaca: Cornell University Press.

Desai, M. (1979). Marxian economics. Totowa, N.J.: Littlefield.

Dewey, J. (1927/1946). The public & its problems. Chicago: Swallow Press.

Dewey, J. (1916/1966). Democracy and education. New York: Free Press.

Dewey, J. (1900/1976a). The middle works, 1899-1924. Vol. 1. 1899-1901. Carbondale: Southern Illinois University Press.

Dewey, J. (1902/1976b). The middle works, 1899-1924. Vol. 2. 1902-1903. Carbondale: Southern Illinois University Press.

Dewey, J. (1935/1987b). The later works, 1925-1953. Vol. 11. 1935-1937. Carbondale: Southern Illinois University Press.

Feinberg, W. (1969). The conflict between intelligence and community in Dewey's educational philosophy. In Educational Theory, Vol. 19, no. 3, pp. 236-248.

Fisk, M. (1980). Ethics and society: A Marxist interpretation of value. Brighton, Sussex: Harvester Press.

Glasbeek, H. (1982). The contract of employment at common law. In J. C. Anderson & M. Gunderson (Eds.), Union-management relations in Canada (pp. 47-77). Don Mills, Ontario: Addison-Wesley.

Goudsblom, J. (1992). Fire and civilization. London: Penguin.

Henry, M. (1983). Marx: A philosophy of human reality. Bloomington: Indiana University Press.

Hirschl, T. (1997). Structural unemployment and the qualitative transformation of capitalism. In J. Davis, T. Hirschl & M. Stack (Eds.), Cutting edge: Technology, information capitalism and social revolution (pp. 157-174). London: Verso.

Hodgskin, T. (1825/1963). Labour defended against the claims of capital, Or the unproductiveness of capital proved with reference to the present combinations amongst journeymen. New York: August M. Kelley.

Kain, P. (1986). Marx' method, epistemology, and humanism: A study in the development of his thought. Dordrecht: D. Reidel.

Karier, C. & Hogan, D. (1979). Schooling, education and the structure of social reality. In Educational Studies, Vol. 10, no. 3, pp. 245-266.

Linder, M., & Nygaard, I. (1998). Void where prohibited: Rest breaks and the right to urinate on company time. Ithaca, N.Y.: ILR Press.

Lukacs, Georg (1968). History and class consciousness: Studies in Marxist dialectics. Cambridge, Mass.: MIT Press.

Manicas, P. T. (1988). Philosophy and politics: A historical approach to Marx and Dewey. In W. J. Gavin (Ed.), Context over foundations: Dewey and Marx (pp. 147-175). Dordrecht: D. Reidel.

Margonis, F. (1994). John Dewey: Organic intellectual of the middle class? In Philosophy of education [On-line]. Available: http://www.ed.uiuc.edu/EPS/PES-Yearbook/94_docs/MARGONIS.HTM

Marx, K. (1861-1863/1968). Theories of surplus value. Pt. 2. Moscow: Progress Publishers.

Marx, K. (1859/1970). A contribution to the critique of political economy. New York: International Publishers.

Marx, K. (1857-1858/1973). Grundrisse: Foundations of the critique of political economy. New York: Vintage.

Marx, K. (1879-1880/1975). Texts on method. Oxford: Basil Blackwell.

Marx, K. (1867/1977a). Capital: A critique of political economy. Vol. 1. New York: Vintage Books.

Marx, K. (1884/1977b). Capital: A critique of political economy. Vol. 2. New York: Vintage Books.

Marx, K. (1894/1977c). Capital: A critique of political economy. Vol. 3. New York: Vintage Books.

Marx, K. & Engels, F. (1841/1975a). Collected works. Vol. 1. New York: International Publishers.

Marx, K. & Engels, F. (1975b). Selected correspondence. Moscow: Progress Publishers.

Marx, K. & Engels, F. (1845-1847/1976). Collected works. Vol. 5. New York: International Publishers.

Marx, K. & Engels, F. (1978). The Marx-Engels Reader. R. C. Tucker (Ed.). 2nd ed. New York: W.W. Norton & Company.

Mathiesen, T. (1974). The politics of abolition: Essays in political action theory. Oslo: Scandinavian University Books.

Mathiesen, T. (1980). Law, society and political action: Towards a strategy under late capitalism. London: Academic Press.

Mathiesen, T. (1990). Prison on trial: A critical assessment. London: SAGE Publications.

Mayhew, K. C. & Edwards, A. C. (1936/1966) The Dewey school: The laboratory school of the University of Chicago, 1896-1903 New York: Atherson Press.

McBride, W. L. (1988). Science, psychology and human values in the context of Dewey's Critique of Marx. In W. J. Gavin (Ed.), Context over foundations: Dewey and Marx (pp. 37-47). Dordrecht: D. Reidel.

McCarthy, G. (1988). Marx's critique of science and positivism: The methodological foundations of political economy. Dordrecht: Kluwer Academic.

McLaren, Peter (1993). Schooling as a ritual performance: Towards a political economy of educational symbols and gestures. 2nd ed. New York: Routledge.

Meikle, S. (1995). Aristotle's economic thought. Oxford: Clarendon Press.

Murray, P. (1988). Marx's theory of scientific knowledge. Atlantic Highlands, N.J.: Humanities Press International.

Nichols, T. & Beynon, H. (1977). Living with capitalism: Class relations and the modern factory. London: Routledge & Kegan Paul.

Novack, G. (1975). Pragmatism versus Marxism: An appraisal of John Dewey's philosophy. New York: Pathfinder Press.

Parringer, W. A. (1990). John Dewey and the paradox of liberal reform. Albany: State University Press.

Postone, M. (1993). Time, labor, and social domination: A reinterpretation of Marx's critical theory. New York: Cambridge University Press.

Prieto, N. I. (1997). Beautiful flowers of the Maquiladora: Life histories of women workers in Tijuana. Austin: University of Texas Press.

Reed, E. S. (1996). The necessity of experience. New Haven: Yale University Press.

Reiman, J. (1996). ... And the poor get prison: Economic bias in American criminal justice. Boston: Allyn and Bacon.

Rule, John (1986). The labouring classes in early industrial England, 1750-1850. London: Longman.

Ryder, J. (1988). Naturalism, dialectical materialism, and an ontology of constitutive relations. In W. J. Gavin (Ed.), Context over foundations: Dewey and Marx (pp. 229-254). Dordrecht: D. Reidel.

Salgado, S. (1993). Workers: An archaeology of the industrial age. New York: Aperture Foundation.

Swan, K. (1982). Union impact on management of the organization: A legal perspective. In J. Anderson & M. Gunderson (Eds.), Union-management relations in Canada. pp. 269-286. Don Mills, Ont.: Addison-Wesley.

Tanner, L.N. (1997). Dewey's laboratory school: Lessons for today. New York: Teachers College Press.

Williams, T. I. (1982). A short history of Twentieth Century technology, c. 1900-c. 1950. Oxford: Clarendon Press.

Wirth, A. (1966). John Dewey as educator: His design for work in education (1894-1904). New York: John Wiley & Sons.

Zeleny, J. (1980). The logic of Marx. Totowa, New Jersey: Rowman and Littlefield.

Appendix

- {1a} Labour, then, as the creator of use-values, as useful labour, is a condition of human existence which is independent of all forms of society; it is an eternal natural necessity which mediates the metabolism between man and nature, and therefore human life himself. (Marx, 1867/1977a, p. 133)
- {1b} The fact that the production of use-values, or goods, is carried on under the control of a capitalist and on his behalf does not alter the general character of that production. We shall therefore, in the first place, have to consider the labour process independently of any specific social formation.
 Labour is, first of all, a process between man and nature, a process by which man, through his own actions, mediates, regulates and controls the metabolism between himself and nature. He confronts the materials of nature as a force of nature. He sets in motion the natural forces which belong to his own body, his arms, legs, head and hands, in order to appropriate the materials of nature in a form adapted to his own needs. Through this movement he acts upon external nature and changes it, and in this way he simultaneously changes his own nature. He develops the potentialities slumbering within nature, and subjects the play of its forces to his own sovereign power. (1867/1977a, p. 283)
- {2} Nor shall we explain to them [the German philosophers, specifically Bruno Bauer and Max Stirner and, perhaps, Ludwig Feuerbach] that it is possible to achieve real liberation only in the real world and by real means, that slavery cannot be abolished without the steam-engine and the mule jenny, serfdom cannot be abolished without improved agriculture, and that, in general, people cannot be liberated as long as they are unable to obtain food and drink, housing and clothing in adequate quality and quantity. (Marx & Engels, 1845-1847/1976, p. 38)
- {3} The premises from which we begin are not arbitrary ones, not dogmas, but real premises from which abstraction can only be made in the imagination. They are the real individuals, their activity and the material conditions of their life, both those which they find already existing and those produced by their activity. These premises can thus be . . . verified in a purely empirical way.
 The first premise of all human history is, of course, the existence of living human individuals. Thus the first fact to be established is the physical organization of these individuals and their consequent relation to the rest of nature. . . . All historical writing must set out from these natural bases and their modification in the course of history through the action of men. . . .

This mode of production must not be considered simply as being the reproduction of the physical existence of the individuals. Rather it is a definite form of activity of these individuals, a definite form of expressing their life, a definite mode of life on their part. As individuals express their life, so they are. What they are, therefore, coincides with their production, both with what they produce and with how they produce. Hence what individuals are depends on the material conditions of their production. (Marx & Engels, 1845-1847/1976, pp. 31-32)

- {4} A critical history of technology would show how little any of the inventions of the eighteenth century are the work of a single individual. As yet such a book does not exist. Darwin has directed attention to the history of natural technology, i.e. the formation of the organs of plants and animals, which serve as the instruments of production for sustaining their life. Does not the history of the productive organs of man in society, of organs that are the material basis of every particular organization of society, deserve equal attention? . . . Technology reveals the active relation of man to nature, the direct process of the production of his life, and thereby it also lays bare the process of the production of the social relations of his life, and of the mental conceptions that flow from those relations. Even a history of religion that is written in abstraction from this material basis is uncritical. It is, in reality, much easier to discover by analysis the earthly kernel of the misty creations of religion than to do the opposite, i.e. to develop from the actual, given relations of life the forms in which these have been apotheosized. The latter method is the only materialist, and therefore the only scientific one. (Marx, 1867/1977a, pp. 493-494)
- {5a} As soon as the labour process has undergone the slightest development, it requires specially prepared instruments. Thus we find stone implements and weapons in the oldest caves. In the earliest period of human history, domesticated animals, i.e. animals that have undergone modification by means of labour, that have been bred specially, play the chief part as instruments of labour along with stones, wood, bones and shells, which have also had work done on them. The use and construction of instruments of labour, although present in germ among certain species of animals, is characteristic of the specifically human labour process, and Franklin therefore defines man as 'a tool-making animal.' Relics of bygone instruments of labour possess the same importance for the investigation of extinct economic formations of society as do fossil bones for the determination of extinct species of animals. It is not what is made but how, and by what instruments of labour, that distinguishes different economic epochs. Instruments of labour not only supply a standard of the degree of

development which human labour has attained, but they also indicate the social relations within which men work. (Marx, 1867/1977a, pp. 285-86)

- {5b} The writers of history have so far paid very little attention to the development of material production, which is the basis of all social life, and therefore of all real history. But prehistoric times at any rate have been classified on the basis of the investigations of natural science, rather than so-called historical research. Prehistory has been divided, according to the materials used to make tools and weapons, into the Stone Age, the Bronze Age and the Iron Age. (Marx, 1977a, p. 286)
- {6} Nature builds no machines, no locomotives, railways, electric telegraphs, self-acting mules, etc. These are products of human industry; natural material transformed into organs of the human will over nature, or of human participation in nature. They are organs of the human brain, created by the human hand; the power of knowledge, objectified. (1857-1858/1973, p. 706)
- {7} Men can be distinguished from animals by consciousness, by religion or by anything else you like. They themselves begin to distinguish themselves from animals as soon as they begin to produce their means of subsistence, a step which is conditioned by their physical organization. By producing their means of subsistence men are indirectly producing their material life. (Marx & Engels, 1845-1847/1976, p. 31)
- {8} Every object possesses various properties, and is thus capable of being applied to different uses. . . .
 Again, a particular product may be used as both instrument of labour and raw material in the same process. . . .
 A product, though ready for immediate consumption, may nevertheless serve as raw material for a further product, as grapes do when they become the raw material for wine. . . .
 Hence we see that whether a use-value is to be regarded as raw material, as instrument of labour or as product is determined entirely by its specific function in the labour process, by the position it occupies there: as its position changes, so do its determining characteristics. (Marx, 1867/1977a, pp. 288-289)
- {9} The usefulness of a thing makes it a use-value. But this usefulness does not dangle in mid-air. It is conditioned by the physical properties of the commodity, and has no existence apart from the latter. It is therefore the physical body of the commodity itself, for instance, iron, corn, a diamond, which is the use-value or useful thing. This property of a

commodity is independent of the amount of labour required to appropriate its useful qualities. (1867/1977a, p. 126)

{10} Therefore, whenever products enter as means of production into new labour processes, they lose their character of being products and function only as objective factors contributing to living labour. A spinner treats spindles only as a means for spinning, and flax as the material he spins. . . . But in the process itself, the fact that they are the products of past labour is as irrelevant as, in the case of the digestive process, the fact that bread is the product of the previous labour of the farmer, the miller and the baker. (1867/1977a, p. 289)

{11} But the past labour embodied in the labour-power and the living labour it can perform, and the daily cost of maintaining labour-power and its daily expenditure in work, are two totally different things. The former determines the exchange-value of the labour-power, the latter is its use-value. The fact that half a day's labour is necessary to keep the worker alive during 24 hours does not in any way prevent him from working a whole day. Therefore the value of labour-power, and the value which that labour-power valorizes . . . in the labour-process, are two entirely different magnitudes; and this difference was what the capitalist had in mind when he was purchasing the labour-power. (1867/1977a, p. 300)

{12} But with a schoolmaster-professor the relations of man to nature are not practical from the outset, that is, relations established by action; rather [for Wagner] they are theoretical relations. . . . But on no account do men begin by 'standing in that theoretical relation to the things of the external world'. They begin, like every animal, by eating, drinking etc., hence not by 'standing' in a relation, but by relating themselves actively, taking hold of certain things in the external world through action, and thus satisfying their needs [s]. (Therefore they begin with production). Through the repetition of this process, the property of those things, their property 'to satisfy needs', is impressed upon their brains; men, like animals, also learn to distinguish 'theoretically' from all other things the external things which serve for the satisfaction of their needs. At a certain stage of this evolution . . . after their needs, and the activities by which they are satisfied, have, in the meantime, increased and developed further, they will christen these things linguistically as a whole class, distinguished empirically . . . from the rest of the external world. This happens necessarily, since they stand continually in the production process--i.e. the process of appropriating these things--in active association among themselves and with these things, and soon have to engage in a battle with others over these things. But this linguistic

designation only expresses as an idea what repeated corroboration in experience has accomplished, namely, that certain external things serve men already living in a certain social connection (this is a necessary presupposition on account of language) for the satisfaction of their needs. (1879-1880/1975, p. 190)

- {13} The production of ideas, of conceptions, of consciousness, is at first directly interwoven with the material activity and the material intercourse of men--the language of real life. Conceiving, thinking, the mental intercourse of men at this stage still appear as the direct efflux of their material behaviour. The same applies to mental production as expressed in the language of the politics, laws, morality, religion, metaphysics, etc., of a people. Men are the producers of their conceptions, ideas, etc., that is, real, active men, as they are conditioned by a definite development of their productive forces and of the intercourse corresponding to these, up to its furthest forms. Consciousness . . . can never be anything else than conscious being . . . and the being of men is their actual life-process. (Marx & Engels, 1845-1847/1976, p. 36)
- {14} . . . but men, developing their material production and their material intercourse, alter, along with this their actual world, also their thinking and the products of their thinking. It is not consciousness that determines life, but life that determines consciousness. (Marx & Engels, 1845-1847/1976, p. 37)
- {15} Men have history because they must produce their life, and because they must produce it moreover in a certain way: this is determined by their physical organisation; their consciousness is determined in just the same way. (Marx & Engels, 1845-1847/1976, p. 43)
- {16} Consciousness is, therefore, from the very beginning a social product, and remains so as long as men exist at all. Consciousness is at first, of course, merely consciousness concerning the immediate sensuous environment and consciousness of the limited connection with other persons and things outside the individual who is growing self-conscious. At the same time it is consciousness of nature, which first confronts men as a completely alien, all-powerful and unassailable force, with which men's relations are purely animal and by which they are overawed like beasts; it is thus a purely animal consciousness of nature (natural religion) precisely because nature is as yet hardly altered by history--on the other hand, it is man's consciousness of the necessity of associating with the individuals around him, the beginning of the consciousness that he is living in society at all. (Marx & Engels, 1845-1847/1976, p. 44)

- {17} Bourgeois society is the most developed and the most complex historic organization of production. The categories which express its relations, the comprehension of its structure, thereby also allows insights into the structure and the relations of production of all the vanished social formations out of whose ruins and elements it built itself up, whose partly still unconquered remnants are carried along within it, whose mere nuances have developed explicit significance within it, etc. Human anatomy contains a key to the anatomy of the ape. The intimations of higher development among the subordinate animal species, however, can be understood only after the higher development is already known. The bourgeois economy thus supplies the key to the ancient, etc. (Marx, 1857-1858/1973, p. 105)
- {18} It would therefore 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. The point is not the historic position of the economic relations in the succession of different forms of society. . . . Rather, their order within modern bourgeois society. (1857-1858/1973, pp. 107-108)
- {19} . . . nothing seems more natural than to begin with ground rent, with landed property, since this is bound up with the earth, the source of all production and of all being, and with the first form of production of all more or less settled societies--agriculture. But nothing would be more erroneous. . . . Among peoples with a settled agriculture--this settling already a great step--where this predominates, as in antiquity and in the feudal order, even industry, together with its organization and the forms of property corresponding to it, has a more or less landed-proprietary character; is either completely dependent on it, as among the earlier Romans, or, as in the Middle Ages, imitates, within the city and its relations, the organization of the land. In the Middle Ages, capital itself--apart from pure money-capital--in the form of the traditional artisans' tools etc., has this landed-proprietary character. In bourgeois society it is the opposite. Agriculture more and more becomes merely a branch of industry, and is entirely dominated by capital. Ground rent likewise. In all forms where landed property rules, the natural relation still predominant. In those where capital rules, the social, historically created element. Ground rent cannot be understood without capital. But capital can certainly be understood without ground rent. (1857-1858/1973, pp. 106-107)

{20} The bourgeois economy thus supplies the key to the ancient, etc. But not at all in the manner of those economists who smudge over all historical differences and see bourgeois relations in all forms of society. One can understand tribute, tithe, etc., if one is acquainted with ground rent. But one must not identify them. Further, since bourgeois society is itself only a contradictory form of development, relations derived from earlier forms will often be found within it only in an entirely stunted form, or even travestied. For example, communal property. Although it is true, therefore, that the categories of bourgeois economics possess a truth for all other forms of society, this is to be taken only with a grain of salt. They can contain them in a developed, or stunted, or caricatured form, etc., but always with an essential difference. (1857-1858/1973, pp. 105-06)

{21} The concrete is concrete because it is the concentration of many determinations, hence unity of the diverse. It appears in the process of thinking, therefore, as a process of concentration, as a result, not as a point of departure, even though it is the point of departure in reality and hence also the point of departure for observation . . . and conception. Along the first path the full conception was evaporated to yield an abstract determination; along the second, the abstract determinations lead towards a reproduction of the concrete by way of thought. In this way Hegel fell into the illusion of conceiving the real as the product of thought concentrating itself, probing its own depths, and unfolding itself out of itself, by itself, whereas 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. (1857-1858/1973, p. 101)

{22} Cf. Marx (1857-1858/1973, pp. 91-92):

Consumption produces production . . . because consumption creates the need for new production, that is it creates the ideal, internally impelling cause for production, which is its presupposition. Consumption creates the motive for production; it also creates the object which is active in production as its determinant aim. . . . consumption ideally posits the object of production as an internal image, as a need, as a drive and as purpose. It creates the objects of production in a still subjective form.

{23} Cf. Marx and Engels (1975, pp. 530-31):

Right by its very nature can consist only in the application of an equal standard; but unequal individuals (and they would not be different

individuals if they were not unequal) are measurable only by an equal standard in so far as they are brought under an equal point of view, are taken from one definite side only, for instance, in the present case, are regarded only as workers and nothing more is seen in them, everything else being ignored.

{24} Cf. Marx, (1867/1977a), p. 149:

However, the properties of a thing do not arise from its relations to other things, they are, on the contrary, merely activated by such relations.

{25} Cf. Marx (1867/1977a, p. 284):

Apart from the exertion of the working organs, a purposeful will is required for the entire duration of the work. This means close attention. The less he is attracted by the nature of the work and the way in which it has to be accomplished, and the less, therefore, he enjoys it as the free play of his own physical and mental powers, the closer his attention is forced to be.

{26} Cf. Marx (1867/1977a, p. 289):

. . . it is by their imperfections that the means of production in any process bring to our attention their character of being the products of past labour. A knife which fails to cut, a piece of thread which keeps on snapping, forcibly remind us of Mr A, the cutler, or Mr B, the spinner.

{27} Cf. Marx (1857-1858/1973, pp. 102-103):

Among the Slav communities also, money and the exchange which determines it play little or no role within the individual communities, but only on their boundaries, in traffic with others; it is simply wrong to place exchange at the centre of communal society as the original, constituent element. It originally appears, rather, in the connection of the different communities with one another, not in the relations between the different members of a single community.

{28a} MARX TO ENGELS IN MANCHESTER

[London,] August 24, 1867

. . . The best points in my book are: 1) the two-fold character of labour, according to whether it is expressed in use value or exchange value. (All understanding of the facts depend upon this.) It is emphasised immediately, in the first chapter. . . (Marx & Engels, 1975b, p. 180)

{28b} MARX TO ENGELS IN MANCHESTER

[London,] January 8, 1868

It is strange that the fellow [Eugen Dühring] does not sense the three fundamentally new elements of the book:

. . . 2) That the economists, without exception, have missed the simple point that if the commodity has a double character--use value and exchange value--then the labour represented by the commodity must also have a two-fold character, while the mere analysis of labour as such, as in Smith, Ricardo, etc., is bound to come up everywhere against inexplicable problems. This is, in fact, the whole secret of the critical conception.

(Marx & Engels, 1975b, p. 186)

{28c} Initially the commodity appeared to us as an object with a dual character, possessing both use-value and exchange-value. Later on it was seen that labour, too, has a dual character: in so far as it finds its expression in value, it no longer possesses the same characteristics as when it is the creator of use-values. I was the first to point out and examine critically this twofold nature of the labour contained in commodities. As this point is crucial to an understanding of political economy, it requires further elucidation. (1867/1977a, pp. 131-132)

{29} The difference between concrete useful labour and labour which creates exchange-value aroused considerable interest in Europe during the eighteenth century in the following form: what particular kind of concrete labour is the source of bourgeois wealth? It was thus assumed that not every kind of labour which is materialised in use-values or yields products must thereby directly create wealth. But for both the Physiocrats and their opponents the crucial issue was not what kind of labour creates value but what kind of labour creates surplus value. They were thus discussing a complex form of the problem before having solved its elementary form; just as the historical progress of all sciences leads only through a multitude of contradictory moves to the real point of departure. Science, unlike other architects, builds not only castles in the air, but may construct separate habitable storeys of the building before laying the foundation stone. (1859/1970, p. 57)

{30} However, the labour that forms the substance of value is equal human labour, the expenditure of identical human labour-power. The total labour-power of society, which is manifested in the values of the world of commodities, counts here as one homogenous mass of human labour-power, although composed of innumerable individual units of labour-power. Each of these units is the same as any other, to the extent that it has the character of a socially average unit of labour-power and acts as such,

i.e. only needs, in order to produce a commodity, the labour time which is necessary on an average, or in other words is socially necessary. Socially necessary labour-time is the labour-time required to produce any use-value under the conditions of production normal for a given society and with the average degree of skill and intensity of labour prevalent in that society. The introduction of power-looms into England, for example, probably reduced by one half the labour required to convert a given quantity of yarn into woven fabric. In order to do this, the English hand-loom weaver in fact needed the same amount of labour-time as before; but the product of his individual hour of labour now only represented half an hour of social labour, and consequently fell to one half its former value. (1867/1977a, p. 129)

- {31} The separation of the intellectual faculties of the production process from manual labour, and the transformation of those faculties into powers exercised by capital over labour is . . . finally completed by large-scale industry erected on the foundation of machinery. The special skill of each individual machine-operator, who has now been deprived of all significance, vanishes as an infinitesimal quantity in the face of the science, the gigantic natural forces, and the mass of social labour embodied in the system of machinery, which, together with those three forces, constitutes the power of the 'master'. (1867/1977a, pp. 548-549)
- {32} From the analysis of exchange-value it follows that the conditions of labour which creates exchange-value are social categories of labour or categories of social labour, social however not in the general sense but in the particular sense, denoting a specific type of society. (1859/1970, pp. 31-32)
- {33} The conversion of all commodities into labour-time is no greater an abstraction, and is no less real, than the resolution of all organic bodies into air. Labour, thus measured by time, does not seem, indeed, to be the labour of different persons, but on the contrary the different working individuals seem to be mere organs of this labour. (1859/1970, p. 30)
- {34} We saw in a former chapter that the exchange of commodities implies contradictory and mutually exclusive conditions. The further development of the commodity does not abolish these contradictions, but rather provides the form within which they have room to move. This is, in general, the way in which real contradictions are resolved. For instance, it is a contradiction to depict one body as constantly falling towards another and at the same time constantly flying away from it. The ellipse is a form of motion within which this contradiction is both realized and resolved.

(1867/1977a, p. 198)

- {35} The mysterious character of the commodity-form consists therefore simply in the fact that the commodity reflects the social characteristics of men's own labour as objective characteristics of the products of labour themselves, as the socio-natural properties of these things. Hence it also reflects the social relation of the producers to the sum total of labour as a social relation between objects, a relation which exists apart from and outside the producers. . . . It is nothing but the definite social relation between men themselves which assumes here, for them, the fantastic form of a relation between things. . . . I call this the fetishism which attaches itself to the products of labour as soon as they are produced as commodities, and is therefore inseparable from the production of commodities. (Marx, 1867/1977a, pp. 164-165)
- {36} In other words, the labour of the private individual manifests itself as an element of the total labour of society only through the relations which the act of exchange establishes between the products, and, through their mediation, between the producers. To the producers, therefore, the social relations between their private labours appear as what they are, i.e. they do not appear as direct social relations between persons in their work, but rather as material . . . relations between persons and social relations between things. (1867/1977a, pp. 165-66)
- {37} Moreover, the co-operation of wage-labourers is entirely brought about by the capital that employs them. Their unification into one single productive body, and the establishment of a connection between their individual functions, lies outside their competence. These things are not their own act, but the act of the capital that brings them together and maintains them in that situation. Hence the interconnection between their various labours confronts them, in the realm of ideas, as a plan drawn up by the capitalist, and, in practice, as his authority, as the powerful will of a being outside them, who subjects their activity to his purpose. (1867/1977a, pp. 449-450)
- {38} If capitalist direction is thus twofold in content, owing to the twofold nature of the process of production which has to be directed--on the one hand a social labour process for the creation of a product, and on the other hand capital's process of valorization--in form it is purely despotic. As co-operation extends its scale, this despotism develops the forms that are peculiar to it. Just as at first the capitalist is relieved from actual labour as soon as his capital has reached that minimum amount with which capitalist production, properly speaking, first begins, so now he

hands over the work of direct and constant supervision of the individual workers and groups of workers to a special kind of wage-labourer. An industrial army of workers under the command of a capitalist requires, like a real army, officers (managers) and N.C.O.s (foremen, overseers), who command during the labour process in the name of capital. The work of supervision becomes their established and exclusive function. (1867/1977a, p. 450)

- {39} Capital's circulation time generally restricts its production time, and hence its valorization process [the process of producing surplus value]. Moreover, it restricts this in proportion to its duration. This can increase or decrease very considerably, and hence restrict the production time of capital to a very different degree. But what political economy sees is only the appearance, i.e. the effect of the circulation time on the valorization process of capital in general. It conceives this negative effect as positive, because its results are positive. It sticks all the more firmly to this illusion, as it seems to provide it with the proof that capital possesses a mystical source of self-valorization that is independent of its production process and hence of the exploitation of labour, and derives rather from the sphere of circulation. (Marx, 1884/1977b, pp. 203-204)
- {40} Profit, as we are originally faced with it, is thus the same thing as surplus-value, save in a mystified form, though one that necessarily arises from the capitalist mode of production. Because no distinction between constant and variable capital can be recognized in the apparent formation of the cost price $[c + v]$, the origin of the change in value that occurs in the course of the production process is shifted from the variable capital to the capital as a whole. Because the price of labour-power appears at one pole in the transformed form of wages, surplus-value appears at the other pole in the transformed form of profit. (Marx, 1894/1977c, p. 127)
- {41} As interest-bearing capital, . . . capital obtains its pure fetish form, M-M' being the subject, a thing for sale. Firstly, by way of its continuing existence as money, a form in which all capital's determinations are dissolved and its real elements are invisible. . . . Secondly, the surplus-value it creates, here again in the form of money, appears to accrue to it as such. Like the growth of trees, so the generation of money . . . seems a property of capital in this form of money capital. (Marx, 1894/1977c, p. 517)
- {42} Within the co-operative society based on common ownership of the means of production, the producers do not exchange their products; just as little does the labour employed on the products appear here as the

value of these products, as a material quality possessed by them, since now, in contrast to capitalist society, individual labour no longer exists in an indirect fashion but directly as a component part of the total labour. (Marx & Engels, 1978, p. 529)

- {43} Hence, equal right here is still in principle--bourgeois right, although principle and practice are no longer at loggerheads. . . . In spite of this advance, this equal right is still constantly stigmatized by a bourgeois limitation. The right of the producers is proportional to the labour they supply; the equality consists in the fact that measurement is made with an equal standard, labour. (Marx & Engels, 1978, p. 530)
- {44} This is determined by a wide range of circumstances; it is determined amongst other things by the workers' average degree of skill, the level of development of science and its technological application, the social organization of the process of production, the extent and effectiveness of the means of production, and the conditions found in the natural environment. (1867/1977a, p. 130)
- {45} Not an atom of matter enters into the objectivity of commodities as values; in this it is the direct opposite of the coarsely sensuous objectivity of commodities as physical objects. We may twist and turn a single commodity as we wish; it remains impossible to grasp it as a thing possessing value. However, let us remember that commodities possess an objective character as values only in so far as they are all expressions of an identical social substance, human labour, that their objective character as values is therefore purely social. From this it follows self-evidently that it can only appear in the social relation between commodity and commodity [as exchange-value or price]. (1867/1977a, pp. 138-139)
- {46} In itself, an increase in the quantity of use-values constitutes an increase in material wealth. Two coats will clothe two men, one coat will only clothe one man, etc. Nevertheless, an increase in the amount of material wealth may correspond to a simultaneous fall in the magnitude of its value. This contradictory movement arises out of the twofold character of labour. (1867/1977a, pp. 136-137)
- {47} The general features of the formal subsumption remain, viz. the direct subordination of the labour process to capital, irrespective of the state of its technological development. But on this foundation there now arises a technologically and otherwise specific mode of production--capitalist production--which transforms the nature of the labour process and its

actual conditions. Only when that happens do we witness the real subsumption of labour under capital. (1867/1977a, pp. 1034-1035)

- {48} M-L is taken as the characteristic feature or hallmark of the so-called money economy because labour appears here as the commodity of its possessor, and hence money as its buyer--in other words because of the money relation (sale and purchase of human activity). But money appears very early on as a buyer of so-called services, without its being transformed into money capital, and without any revolution in the general character of the economy. (1884/1977b, pp. 113-114)
- {49} When in 1735 John Wyatt announced his spinning machine, and thereby started the industrial revolution of the eighteenth century, he nowhere mentioned that a donkey would provide the motive power instead of a man, yet this is what actually happened. In his programme it was called a machine 'to spin without fingers'. (1867/1977a, p. 493)
- {50} It is this last part of the machinery, the tool or working machine, with which the industrial revolution of the eighteenth century began. And to this day it constantly serves as the starting point whenever a handicraft or a manufacture is turned into an industry carried on by machinery. (1867/1977a, p. 494)
- {51} Capital itself is the moving contradiction, [in] that it presses to reduce labour time to a minimum, while it posits labour time, on the other side, as sole measure and source of wealth. Hence it diminishes labour time in the necessary form so as to increase it in the superfluous form; hence posits the surplus in growing measure as a condition--question of life or death--for the necessary. On the one side, then, it calls to life all the powers of science and of nature, as of social combination and of social intercourse, in order to make the creation of wealth independent (relatively) of the labour time employed on it. On the other side, it wants to use labour time as the measuring rod for the giant social forces thereby created, and to confine them within the limits required to maintain the already created value as value. Forces of production and social relations--two different sides of the development of the social individual--appear to capital as mere means, and are merely means for it to produce on its limited foundation. In fact, however, they are the material conditions to blow this foundation sky-high. (1857-1858/1973, p. 706)
- {52} As soon as labour in the direct form has ceased to be the great well-spring of wealth, labour time ceases and must cease to be its measure, and hence exchange value [must cease to be the measure] of use value. The surplus

labour of the mass has ceased to be the condition for the development of general wealth, just as the non-labour of the few, for the development of the general powers of the human head. With that, production based on exchange value breaks down, and the direct, material production process is stripped of the form of penury and antithesis. The free development of individualities, and hence not the reduction of necessary labour time so as to posit surplus labour, but rather the general reduction of the necessary labour of society to a minimum, which then corresponds to the artistic, scientific, etc. development of the individuals in the time set free, and with the means created, for all of them. (1857-1858/1973, pp. 705-706)

- {53} If, for example, purchase and sale--or the metamorphosis of commodities--represent the unity of two processes, or rather the movement of one process through two opposite phases, and thus essentially the unity of the two phases, the movement is essentially just as much the separation of these two phases and their becoming independent of each other. Since, however, they belong together, the independence of the two correlated aspects can only show itself forcibly, as a destructive process. It is just the crisis in which they assert their unity, the unity of the different aspects. (1861-1863/1968, p. 500)
- {54} The circulation of commodities differs from the direct exchange of products not only in form, but in its essence. . . . there develops a whole network of social connections of natural origin, entirely beyond the control of the human agents. Only because the farmer has sold his wheat is the weaver able to sell his linen, only because the weaver has sold his linen is our rash and intemperate friend able to sell his Bible, and only because the latter already has the water of everlasting life is the distiller able to sell his eau-de-vie. And so it goes on. (1867/1977a, pp. 207-208)
- {55} Secondly, however, with regard to the possibility of crisis arising from the form of money as means of payment, it appears that capital may provide a much more concrete basis for turning this possibility into reality. . . . Besides, the iron, coal, timber and flax producers have paid one another with bills of exchange. Now if the merchant does not pay, then the weaver cannot pay his bill of exchange to the banker. . . . And all of these in turn, as they cannot realise the value of their commodities, cannot replace that portion of value which is to replace their constant capital. Thus the general crisis comes into being. This is nothing other than the possibility of crisis described when dealing with money as a means of payment; but here--in capitalist production--we can already see the connection between the mutual claims and obligations, the sales and purchases, through which the possibility can develop into actuality. (1861-

1863/1968, pp. 511-512)

- {56} If Ricardo thinks that the commodity form makes no difference to the product, and furthermore, that commodity circulation differs only formally from barter, that in this context the exchange-value is only a fleeting form of the exchange of things, and that money is therefore merely a formal means of circulation--then this in fact is in line with his presupposition that the bourgeois mode of production is the absolute mode of production, hence it is a mode of production without any definite specific characteristics, its distinctive traits are merely formal. He cannot therefore admit that the bourgeois mode of production contains within itself a barrier to the free development of the productive forces, a barrier which comes to the surface in crises and, in particular, in over-production--the basic phenomenon in crises. (1861-1863/1968, pp. 527-528)
- {57} Defined more closely, this means nothing more than that too much has been produced for the purpose of enrichment, or that too great a part of the product is intended not for consumption as revenue, but for making more money (for accumulation): not to satisfy the personal needs of its owner, but to give him money, abstract social riches and capital, more power over the labour of others, i.e., to increase this power. (1861-1863/1968, pp. 533-534)
- {58} With this general prosperity, in which the productive forces of bourgeois society develop as luxuriantly as is at all possible within bourgeois relationships, there can be no talk of a real revolution. Such a revolution is only possible in the periods when both these factors, the modern productive forces and the bourgeois productive forms come in collision with each other. . . . A new revolution is possible only in consequence of a new crisis. It is, however, just as certain as this crisis. (Marx & Engels, 1978, p. 593)
- {59a} Further, although money everywhere plays a role from very early on, it is nevertheless a predominant element, in antiquity, only within the confines of certain one-sidedly developed nations, trading nations. And even in the most advanced parts of the ancient world, among the Greeks and Romans, the full development of money, which is presupposed in modern bourgeois society, appears only in the period of their dissolution. (1857-1858/1973, p. 103)
- {59b} The class struggle in the ancient world, for instance, took the form mainly of a contest between debtors and creditors, and ended in Rome with the ruin of plebian debtors, who were replaced by slaves. (1867/1977a, p. 233)

- {60} . . . although at first the development of the capacities of the human species takes place at the cost of the majority of human individuals and even classes, in the end it breaks through this contradiction and coincides with the development of the individual; the higher development of individuality is thus only achieved by a historical process during which individuals are sacrificed, for the interests of the species in the human kingdom, as in the animal and plant kingdoms, always assert themselves at the cost of the interests of individuals, because these interests of the species coincide only with the interests of certain individuals, and it is this coincidence which constitutes the strength of these privileged individuals. (1861-1863/1968, p. 118)
- {61} It should be further examined, or rather it would be part of the general question, whether the different civilized forms of money . . . can accomplish what is demanded of them without suspending the very relation of production which is expressed in the category money, and whether it is not a self-contradictory demand to wish to get around essential determinants of a relation by means of formal modifications? Various forms of money may correspond better to social production in various stages; one form may remedy evils against which another is powerless; but none of them, as long as they remain forms of money, and as long as money remains an essential relation of production, is capable of overcoming the contradictions inherent in the money relation, and can instead only hope to reproduce these contradictions in one or another form. One form of wage labour may correct the abuses of another, but no form of wage labour can correct the abuse of wage labour itself. (1857-1858/1973, p. 123)