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CAPITALISM, SOCIALISM, AND DEMOCRACY:
A NEW APPRAISAL

DISSERTATION

Presented in Partial Fulfillment of the Requirements for
the Degree Doctor of Philosophy in the Graduate
School of The Ohio State University

By
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The Ohio State University
1984

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Dedicated to the memory of John Meysenburg, shot and killed in his flower shop during a robbery, a man dedicated to helping the poor and disadvantaged whose life was tragically extinguished by a poor person in need of money.
ACKNOWLEDGEMENTS

This dissertation is the product of a long process of intellectual development, and it is impossible in several pages to mention all those who have assisted my education leading up to and through this project. I must therefore apologize in advance for neglecting so many important people in these acknowledgements.

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INTRODUCTION

The State of Marxist Theory in 1984

Marx predicted over a century ago that capitalism would develop contradictions that would result in its collapse and subsequent replacement by socialism. Although the spectre of communism continues to haunt the capitalist world and the ruling powers are concerned more than ever about the communist menace, communist and socialist principles are not widely held by members of the working class. This fear of communism among the capitalists is natural, since it represents the threat of a radical re-distribution of wealth and power in society, but in reality, the threat seems little more than a ghost whose philosophy gives cause for concern, but whose popularity is slight.

This state of affairs suggests a serious problem for Marxism. If we take seriously Marx's claim to have produced a science of society, then it would seem that this scientific theory has failed with regard to its most important prediction. Hence, many people today regard Marxism as refuted and irrelevant to modern concerns. Even many Marxists do not take seriously Marx's theory of revolution, and concentrate on the theory as an account of injustice and exploitation. Some will admit that Marx's vision of the future of capitalist society is an important part of his theory, but insist that it is unrealistic to expect revolutionary changes within our lifetimes.

The acceptance of a principle of "uniformity of nature" makes such a conclusion unavoidable, and it is natural to arrive at such a conclusion based upon our own experience. The society in which we live has existed for our entire lifetimes and thus can appear to us to be the form that any society takes. In assuming this, however, we neglect the fact that throughout history there have been many kinds of society each of which seemed natural for a rather extended time. The uniformity of nature is in this sense always a conservative principle. It is, in fact, the most powerful argument on behalf of a conservative vision.

I argue here against adopting this conservative vision today. Marxism is today the one significant alternative to the liberal capitalist theory that is the basis of our society, and the four
chapters that follow each present a defense of Marxism against a different attempt to refute it. Chapter One discusses the attempts of some philosophers of science to dismiss the Marxian theory based on its failure to conform to certain "rules of science." Chapter Two criticizes attacks on Marxism for its use of the "unscientific" labor theory of value. Chapter Three discusses the central question in Marxian economics, the theory of business cycles and depression, and argues that recent economic theory supports rather than condemns Marx's analysis of this problem. Chapter Four wraps up the argument by showing that a socialist society, contrary to popular opinion, can be both politically democratic and economically efficient. In the remainder of this Introduction, I shall attempt to indicate briefly the overall relationship between these arguments.

Marxist discussion of philosophy of science and scientific method usually focuses on an exposition of dialectical materialism. This is unfortunate, as there is much in recent non-Marxist philosophy of science that supports Marx. Since the publication of Kuhn's *The Structure of Scientific Revolutions* in 1962, philosophers of science have increasingly called into question the methods of both inductivism and falsificationism, two theories of science that have been widely used against Marxism. Kuhn, Lakatos, et al. have recognized that, whatever the uses of induction as a method for solving problems within a theory, it is not a reliable tool for evaluating new and challenging theories, as the acceptance of a new theory is always, at first, counter-inductive. Similarly, the new falsification of theories that are facing explanatory problems is never an easy matter, even when those problems are most serious.

This is true even for established theories, but in the case of relatively new theories that have not had an opportunity to develop a research tradition -- i.e., that have not reached the stage of having a period of normal science -- refutation is even more difficult. In most cases, it is impossible to refute the challenger to the established theory directly; the failure of a challenger must be seen not as the result of its own explanatory failures, but as the result of the success of the established theory in resolving its difficulties. Such is the case with Marxism, both yesterday and today. However, much its opponents, such as Popper and Lakatos, might like to prove it mistaken, its strength or weakness must be gauged by the weakness or strength of its rival, the capitalist theory.

Notice the bearing of this conclusion on the criticism that the survival of capitalism for so long has refuted Marxism. We can acknowledge that this poses something of a problem for Marxism, but how much of a problem it is depends upon the ability of the capitalist theory and of capitalist society to resolve their problems. The fact that capitalism has survived past crises is meaningful only so long as that history of success carries over to the next capitalist crisis or prevents the recurrence of such a crisis.
Hence, we must follow Marx and leave the study of philosophy of science for the study of political economy. The first question one encounters -- historically, if not logically -- is the controversy that developed in the late Nineteenth Century over the labor theory of value. We might call this "the first crisis of economic theory," and due to the centrality of the labor theory of value in Marx, the "neo-classical" solution has been hotly debated by Marxists and anti-Marxists alike. I argue that the problem has been misunderstood both by critics and defenders of the neo-classical theory, and that it is not as central to the battle between Marxism and capitalism as has been commonly supposed.

Chapter Three is, however, the heart of this study, and those not interested in questions related to the theory of value might move right into it. Here I take up the central question that divides Marxist and capitalist theory -- the question of business cycles and the stability of a free enterprise capitalist economy. Beginning with the classical principle of Say's Law of Markets -- the principle that supply creates its own demand and thus that there is an automatic tendency for a free enterprise, capitalist economy to attain equilibrium at a position of full employment -- I move on to discuss Keynes's criticisms of the principle, Henry Smith's excellent exposition of Marx's theory of business cycles that shows the similarity between Marx's account and more modern work, and the Marxist economist Michael Kalecki's analysis of business cycles and of the future of capitalism. I conclude with a discussion of Joan Robinson's views. Joan Robinson is, in my opinion, the most important economist of the Twentieth Century of Marxist persuasion, and her most recent works summarize neatly the case against capitalism.

My conclusion is not that capitalism will enter another crisis comparable to the 1930's within any definite time frame, as I do not believe that it is possible to establish such a conclusion. What is equally serious, however, is the result that capitalist theory is today immersed in a crisis very similar to the one that preceded the last depression. There is no reason today to think that the business cycle has been smoothed out, or to doubt the possibility of another depression as serious as that of fifty years ago. The difference is that, unlike the last depression where Keynes et al. appeared to solve the problem (if only temporarily), there is today no new solution to the problem. Furthermore, the simple solution of returning to government spending policies will not be so simple as some might expect. A large share of the public has lost its confidence in these policies, a loss of confidence that will be difficult to eliminate.

The occurrence of a new depression would doubtless create as much havoc as the last one, and would cause a good many people to long for times of greater stability such as those that existed with government spending policies. There is, therefore, always the possibility that society would indeed choose a return to the Keynesian policies. Such a return would be, however, neither advisable nor necessary. The policies that grew out of the last depression were indeed a failure.
They did not solve the problems of unemployment or poverty in the midst of plenty. They led to vast budget deficits and to increased spending on armaments. A new crisis of capitalism would be not just a fearful event, but a promising one as well, for in light of such a crisis the possibility of socialism would perhaps seem the only solution. The final chapter is intended to establish the superiority of socialism as a model of society by showing that it is compatible with democratic political and economic institutions, as well as economic efficiency. In light of the present condition of the world, we can only hope that this conclusion occurs to enough people soon enough to transform the potential extinction of our species into a new world of equality and comfort for all. The concluding chapter indicates some ways in which such a world might result from a socialist system.
I. MARXISM AND SCIENTIFIC METHOD

Philosophers of science have often argued against Marxism on grounds that it does not employ a scientific method. Marx, on the other hand, consciously worked at developing a revolutionary science of society and criticized other socialist theories as being utopian rather than scientific. This chapter refutes the criticisms of Marxism which a number of philosophers of science have raised and clarifies the sense in which Marxism is a scientific theory by examining the philosophy of science which has recently developed through the work of Thomas Kuhn and Imre Lakatos.

I first examine J.W.N. Watkin's argument against Marxism which claims that it is not a science because it does not employ the method of methodological individualism (MI). MI is the thesis that society must be understood as simply a collection of individuals and that theories which view it as something greater than the sum of its parts are unscientific. In using this argument against Marxism, Watkin ignores an important argument by Quine that ontological commitments derive from scientific theories and thus cannot be the basis for evaluating those theories. Although MI has been widely used against Marxism, Quine's argument is sufficient to eliminate the criticism.

I then turn to Popper's objection that Marxism has been falsified by history and that one can only accept the theory today by introducing ad hoc assumptions that make it tautological. Although this argument has been influential with philosophers and social scientists, it shows only that Marxism has been less than a complete explanatory and predictive success; Popper produces no reasons for viewing the problems as sufficient for falsification.

Popper's failure to show why explanatory problems with Marxism should count as falsification raises the general question of how one knows when a theory has been falsified. This question led to the development of the historical philosophies of science recently developed by Kuhn and Lakatos, and following the discussion of Popper's attempt to refute Marxism, I turn to their theories of science. Although both Kuhn and Lakatos propose a loosening of the criteria for qualification as a science, neither views Marxism as a scientific theory. An examination of their reasons for their views on Marxism reveals inconsistencies with their views on science, and I argue that if one applies their methodological views to Marxism, it turns out to be a scientific theory. Although the admission that Marxism is scientific does not prove the truth of the theory, it is an important precondition for such a proof,
which must await the arguments of subsequent chapters.

In addition to criticizing Kuhn's and Lakatos's objections to Marxism, however, I discuss their general views on science. They provide some valuable insights into the nature of science, and their views are useful for understanding the arguments between Marxism and capitalism discussed in later chapters. In particular, Lakatos criticizes Kuhn for abandoning the method of falsification altogether and claims that Kuhn has misunderstood the nature of science and has reduced science to irrationalism. I examine this dispute in some detail. I argue that Lakatos correctly challenges Kuhn's claim that criticism is not the essence of science, but that this criticism does not provide a basis for concluding that Marxism is unscientific, as Lakatos claims.

The discussions of the methodological views of Watkins, Popper, Kuhn, and Lakatos set the stage for the substantive economic arguments which I take up in Chapter Two. The economic questions are those that ultimately decide the fate of both Marxist and capitalist theory, and there is no way to decide in favor of one or the other on purely methodological grounds. I must therefore emphasize that the arguments in this chapter offer not a justification of Marxism, but simply support a demand that one refrain from rejecting the theory on grounds other than the relevant scientific ones. The effect of methodological attacks on Marxism is to cut off discussion of the theory before it has had the chance to develop its substantive challenge to capitalist theory, and to do so is to treat Marxism unfairly.

Before turning to the objections to Marxism as a science, however, it will be helpful to consider the grounds for designating any social theory scientific. Although none of the philosophers whom I discuss here denies that there can be a science of society and all agree that economics (as it is practiced in university economics departments, for example) is a legitimate social science, some people nevertheless claim that there are differences between the social and natural sciences which are sufficient to warrant a denial of scientific status to the social theories. Our discussion will show that although there are indeed significant differences between theories in the natural and social sciences, the differences do not justify a claim that the former are the only legitimate sciences. This awareness that theories of society can be scientific is important to the later discussion of Marxism as a theory in the social sciences.

Science and Social Science

Although the natural sciences receive more recognition as "scientific" than the social sciences, there is in fact no reason to deny that one can apply empirical scientific methods just as well to the study of society as to the study of nature. There are, of course, important differences between the methods of the social and natural sciences. Of particular importance is the advantage of controlled
experiments which many of the natural sciences enjoy, and which make possible far more precise testing. But this difference aside, the social sciences can still employ the method of science and formulate hypotheses which one can then test by observation. If there is unanimity among philosophers of science on anything, it is that science consists of the formulation of hypotheses to explain observable events, and that decisions about whether to accept or reject such hypotheses must be made on the basis of observation. Even Kuhn, who sometimes seems to deny the importance of the testing of scientific theories, would not deny that when testing occurs, it is on the basis of observation.

Modern natural and social science, in fact, originated in the same intellectual revolution which was part of the larger social revolution of the fifteenth and sixteenth centuries. A major change wrought by this revolution was the questioning of church authority in intellectual and social matters, including cosmology, society, and religion. At the same time that Copernicus, Kepler, Galileo, and others were challenging the Ptolemaic and Aristotelian view of the universe which was sanctioned and defended by the Roman Church, the theory of the nation-state was arising and challenging the authority of the Church in politics. Furthermore, the dominant ideology of society which placed restrictions on profit and thus on trade was being attacked successfully by the rising merchant class.

Speculation about society thus increased right along with speculation about nature, and in both cases the spirit of the enterprise and the methods which were held to produce successful results were identical. The spirit was one of freedom of the individual to observe, think, and speculate independently of the dictates of authority. And ultimately, the new form of authority which replaces the church -- the state -- has limited powers, and is rationally justified, precisely as are the new sciences of nature. Laski, for example, notes that

the theories of Hooker are almost wholly built upon a rational and utilitarian foundation. The power of the prince over the Church is accepted, not on ground of history or of scriptural text, but of social convenience....

It is not too much to say of this attitude that Bacon would not have disowned it in Hooker's own generation, and hardly Hobbes in the next.... It shows that Hooker is the contemporary of those men of science who were shaping a new world.  

Laski summarizes the totally new climate which developed concurrently in both the social and natural sciences and philosophies as follows:

In the sixteenth century,...the foundations of a liberal doctrine have been laid.... There is a social discipline which finds its sanctions
independently of the religious ideal. There is an intellectual temper aware, perhaps a little uneasily aware, that a limitation to the right of speculation is also a limitation to the right to material power. There is a new physical world, both in the geographical sense and in the ideological.... In its essence, it is the outlook of a new class which, given authority, is convinced that it can remould more adequately than in the past the destinies of man.3

But although the historical connection between the rise of liberal political philosophy and the Galilean-Newtonian scientific revolution is clear enough, and although the philosophies of Hobbes and Locke both attempted consciously to integrate the new theories of nature with their social doctrines, the resulting social doctrine is not recognized as scientific as readily as the corresponding natural theories of the same generation. What reasons can one give for refusing the social theory the title of 'science' while granting that title to the natural theories? The question is not as easy to answer as one might think in light of the numbers of philosophers and scientists who would doubt the scientific status of social theories.

The term science is sometimes reserved for series of theories which exhibit progress in their development, and it is sometimes claimed — e.g., by Kuhn in the last chapter of his The Structure of Scientific Revolutions4 — that this is what distinguishes the established natural sciences from the social theories which are still striving toward earning the title of 'science'. The history of social thought, however, since the scientific revolution discussed above, exhibits a remarkable progress from the beginnings of liberal social theory with Hobbes and Locke, its evolution toward a more general expression in Adam Smith's The Wealth of Nations, and further development in the theories of Bentham, Ricardo, and Mill. In the development of the liberal social theory with its emphasis on laissez-faire principles, there is a conscious striving for a higher degree of abstraction and generality in the successive writers which parallels the development of physical theory from Copernicus through Kepler and Galileo to its culmination in Newton. Furthermore, as economic theory developed through Ricardo, there was increasing agreement on its fundamental principles. Mill, for example, says of Ricardo's treatment of value there that "happily there is nothing in the laws of Value which remains for the present or any future writer to clear up; the theory of the subject is complete."5 This statement, although it turned out to be false and preceded a revolution within capitalist theory on value, nevertheless shows that social theory had reached a consensus on one of the fundamental principles of economics, although the consensus was short-lived.

I cannot now enter into a detailed discussion of the theory of value in political economy, and will discuss the problem in greater detail in the next chapter; for now, I note only the characteristics of
the theory which exhibit most clearly its role in the development of a science of society which parallels the development of science in physical theory.

The culmination of the scientific revolution in physics was the triumph of Newton's laws of mechanics. Newton and Galileo advanced the physical sciences by supplying a general set of laws sufficient to explain both terrestrial and heavenly phenomena. Furthermore, the new theory of gravity and inertia radically altered the explanation of motion by assuming that either motion or rest tends to continue until an object is acted upon. (Aristotle, on the other hand, assumed that rest is the natural state of all objects.) Similarly, the new theory of society progressed toward a general theory of value and of economics which explained a wider range of phenomena by moving consistently toward a more general and abstract theory through the theories of Locke, Adam Smith, and finally Ricardo, whose version of the theory is recognized as its most general expression.

The theory was a theory of free trade, unregulated by government action, and in its most general form, it explained all economic phenomena, including the sources of profit and the causes of prices in the market, through the principles of laissez-faire and the labor theory of value. The beginning of the theory of free trade is found in mercantilism, where international trade and the development of colonies and acquisition of gold and precious metals and stones were recognized as the sources of wealth. Although free trade was recommended in the realm of international trade, however, it was not accepted as a principle governing the domestic economy. The classical political economists, Smith and Ricardo, united the explanations of domestic and international trade in a single general theory which would eliminate governmental interference in all markets and which traced the source of all wealth to a single cause -- labor.

My grounds for insisting that the development of the liberal social theory through Hobbes, Locke, Smith, and Ricardo is nothing less than the development of a scientific revolution is well illustrated by juxtaposing the following passage from Kuhn on the development of the natural sciences with another by the economic historian Karl Polanyi regarding the actual development of the liberal theory of society. Kuhn notes that science is characterized by an agreement on fundamental principles.

No period between remote antiquity and the end of the seventeenth century exhibited a single generally accepted view about the nature of light. Instead there were a number of competing schools and sub-schools, most of them espousing one variant or another of Epicurean, Aristotelian, or Platónic theory....

At various times all these schools made significant contributions to the body of
concepts, phenomena, and techniques from which Newton drew the first nearly uniformly accepted paradigm for physical optics. Those men were scientists. Yet anyone examining a survey of physical optics before Newton may well conclude that, though the field's practitioners were scientists, the net result of their activity was something less than science. Being able to take no common body of belief for granted, each writer on physical optics felt forced to build his field anew from its foundations.

Now Polanyi points out that the development of the concept of the self-regulating market was likewise an unprecedented development which underlies modern social theory and which continues as the basic assumption of modern capitalist social theory, as must be clear to anyone who has been even peripherally exposed to it.

Market economy implies a self-regulating system of markets; in slightly more technical terms, it is an economy directed by market prices and nothing else. Such a system capable of organizing the whole of economic life without outside help or interference would certainly deserve to be called self-regulating. These rough indications should suffice to show the entirely unprecedented nature of such a venture in the history of the race.

Polanyi goes on to underscore the novelty of basing a society on such a self-regulating market. Many writers spoke of the market as if it were universal, and Adam Smith was among this group. The notion became so widely accepted that it was virtually unquestioned by the nineteenth century, when liberal theory had become firmly entrenched as the dominant social theory. Polanyi says,

In retrospect it can be said that no misreading of the past ever proved more prophetic of the future. For while up to Adam Smith's time that propensity had hardly shown up on a considerable scale in the life of any observed community, and had remained, at best, a subordinate feature of economic life, a hundred years later an industrial system was in full swing over the major part of the planet which, practically and theoretically, implied that the human race was swayed in all its economic activities, if not also in its political, intellectual, and spiritual pursuits, by that one particular propensity.

The revolution in social thought which I have been discussing had an impact equal to that of the revolution in natural philosophy and
science. Like the latter, it provided a general theory which explained a wide range of phenomena, which was based on observation rather than upon scriptural principles, and which eventually, by the time of Ricardo, produced a growing consensus on the fundamental assumptions underlying social theory. One is, in light of these parallels with natural theory, hard put to deny that the social theory of liberalism is scientific.

One can, of course, nevertheless point out that the social sciences are less advanced than many of the natural sciences and lack, for example, the predictive power that the more advanced natural sciences possess. But although this point is true, it is not sufficient to deny the status of science to social theories. I have noted that the social sciences lack the experimental capabilities of the natural sciences due to the inability to engage in strictly controlled experiment. This shortcoming is a function of the subject matter and does not reflect on the discipline's status as a science; perhaps we must be satisfied with a lesser degree of precision in the study of society, but this less precise knowledge still deserves the title 'science', so long as it strives for knowledge through empirical methods. Another obstacle for the social sciences is that whereas, except in biology, the subject matter of the natural sciences does not change, and nature obeys the same laws now as always, this cannot be claimed about society, which is constantly changing. Again, this raises difficulties in precision, but does not mean that one cannot employ scientific methods.

Although we have not discussed here the scientific revolution brought on by Marxism, the establishment of scientific status for social theories is nonetheless important for our thesis. In order for me later to argue that Marxism is a scientific theory, I shall show that it is scientific in the same sense as liberal theory, namely, it is a general theory of society and consists of a set of laws which explain and predict observable phenomena. It differs on fundamental principles from the liberal capitalist theory which it aims to replace, and does not meet the same degree of success on all problems as the rival liberal capitalist theory, but it need not do so in order to qualify as scientific.

Many philosophers of science, however, do not question whether the social sciences are scientific, but only the scientific status of Marxist theory. They claim that liberal capitalist social theory is scientific and conforms to the rules of science, but that Marxism does not do so. I now turn to these attempts to de-certify Marxism as a science and show where they fail. I shall argue that in each case, there is a misinterpretation of Marx's theory which contributes to the failure of the argument, but in addition there is another fundamental methodological mistake which each of the following criticisms of Marxism shares, namely, the attempt to dismiss a theory because of the kind of theory which it is, rather than on the basis of the content of the theory.
The Question of Methodological Individualism

Methodological individualism (MI) maintains that explanations of social phenomena must refer ultimately only to individual human beings, and that any explanations whose terms are not reducible to individuals are unscientific. J.W.N. Watkins, whose version of MI interests me in this study, says that the principle of MI "could also be expressed by saying that no social tendency is somehow imposed on human beings 'from above' (or 'from below') -- social tendencies are the product (usually undesigned) of human characteristics and activities and situations, of people's ignorance and laziness as well as their knowledge."9

MI is clearly aimed at Marx, since he does not employ this method, Marx maintains, on the other hand, that individuals are not the primitive terms in social explanations, since their actions must be explained by reference to the society in which they live.10 In fact, MI is the method of liberal capitalist theory, and one of Marx's primary goals is to refute this method. Watkins, on the other hand, denies that any science of society can reject this method.

Although MI is a methodological thesis, the arguments presented on its behalf are ontological. Watkins maintains that MI is true because the ultimate constituents of society are, in fact, individuals; society is nothing other than a collection of individuals, and if one removes the individuals, no residue remains. This statement has been persuasive, and even critics of MI have been reluctant to criticize it. Leon Goldstein, for example, in rejecting MI, nonetheless claims adherence to the ontological principle that only individuals are the ultimate constituents of society and goes on to deny that MI follows from this ontological principle:

If Methodological individualism is the thesis that denies the existence of these non-human entities, it is clear that... I, in my earlier paper on this subject, may (not) be said to have opposed it. Thus, one may wonder what all the controversy is about. The fact of the matter is, however, that under the rubric 'methodological individualism' Watkins has subsumed two positions. The one we have been dealing with is not a methodological position at all. This non-methodological -- ontological -- version of the principle of methodological individualism is the doctrine which denies the existence of certain alleged entities. The other, more truly methodological thesis is the one which claims that all explanation in social science must, in the end, be reduced to individual dispositions. The bulk of the rhetorical force of the arguments that are supposed to be in defense of the more methodological of the individualist theses comes from confusing its denial with the denial of the ontological thesis.11
Has Watkins simply overlooked the distinction between methodo-
logical individualism and the ontological thesis, as Goldstein suggests,
or does he have grounds for claiming that the ontological thesis entails
MI? Closer examination of the problem reveals that in this dispute,
Watkins never spells out the response to Goldstein's criticisms.
Although I shall show that Watkins has no grounds for maintaining either
MI or its ontological correlate, he is correct to understand the two as
related.

Suppose we reject MI while maintaining Goldstein's thesis of
ontological individualism (OI). We are thus committed to claiming that
individuals are the only constituents of society, but that social
explanations may nevertheless include primitive terms which do not refer
to individuals. But if these terms do not refer to individuals, then
what, we must ask, do they refer to? Goldstein provides no answer to
this question. Without this, he must take the position that it is per-
missible for social theories to refer to entities which do not exist,
a position which is untenable on its face.

Watkins is thus guilty of no error in equating the principles of
MI and OI for, as Quine points out, scientific theories do carry with
them ontological commitments. Goldstein has failed, in this exchange
with Watkins, to find the error in the latter's argument. The real
problem with Watkins' thesis is not that he perceives a relationship
between MI and OI, but that he accepts OI without question. Since
Goldstein also accepts OI without question, he is unable to find the
error in Watkins' argument.

Although MI and OI are closely related, Watkins has assumed that
the latter can serve as a justification of the former. This is, however,
precisely the inverse of the actual relationship for, as Quine has
argued, the justification of a given ontology is based on the explana-
tory power which results from the inclusion of the entities in one's
theory. Scientific theories, in other words, are not justified because
They are based on a given ontology, but ontologies are justified as a
result of their association with a powerful theory. Quine's argument makes this point with respect to numbers, claiming that numbers exist
because we must make such an assumption in order to have modern science.
Quine is well aware that nominalism, which denies that numbers actually
exist, is prima facie a more plausible position, but argues that science
dictates a platonistic position, and that explanatory power overrides
prima facie plausibility.

Marx's denial of MI is justifiable on similar grounds. Marx
denies an assumption which seems obvious, but that denial is not suffi-
cient to show that the theory is false. Indeed, if the denial of
apparently obvious principles were sufficient to show the falsity of a
theory, then non-Euclidean geometry would never have gotten off the
ground. Likewise, for centuries, it seemed beyond question that society
is a creation of God and not of human beings. Assumptions such as these,
as well as MI, derive their obviousness from their association with a
powerful explanatory theory and are not the justification for the theory.
Watkins not only fails to understand how ontological commitments are justified, but he also bases his explicit criticism of Marxism on the shallowest understanding of that theory, and gives the theory an ontology which is far less plausible than its ontology actually is. Marx does not deny that human beings are the constituents of society; he does deny that taking those humans beings as the primitive, unexplained terms in the theory of society provides the best model for explaining social phenomena. He understands that individuals are the constituents of classes, but he claims that class status explains the behavior of individuals rather than **vice-versa**. This does not commit one to the claim that classes are a mysterious sort of entity, as the following analogy indicates.

The biological behavior of organisms is explained by reference to various organs, just as Marx's social explanations refer to classes. Now an organ is obviously a collection of individual cells, but in order to explain the organism's behavior, we differentiate among different groups of cells by reference to the organs which those cells compose; it is the organs which differentiate and explain the behavior of the different cells in the different organs. In this respect, organs are logically prior to cells in many biological explanations. Although the organs are composed of cells and might be regarded simply as a collection of cells, the latter perspective is often not very helpful in biological explanations.

An organ is a collection of cells, but in order to arrive at fruitful explanations, we must also recognize that it is a collection of a certain kind of cells. Similarly, although a social class is, according to Marx, a collection of human individuals, it is a collection of a certain kind of individuals, and it is the names of these kinds -- e.g., 'working class' or 'capitalist class' -- which are crucial in social explanation. This position does not commit one to an ontology of mysterious super-human entities.

The view that commitment to a non-individualistic ontology commits one to such a mysterious kind of entity (together with his bias against Marxism) leads Watkins to distort Marx's theory enormously. He says, for example,

> Unfortunately, it is typically a part of the programme of Marxist and other historicist sociologies to try to account for the formation of ideologies and other psychological characteristics in strictly sociological and non-psychological terms. Marx, for instance, professed to believe that feudal ideas and bourgeois ideas are more or less generated by the water mill and the steam engine.

Watkins thus includes Marx in that group of social theorists who mechanistically relegate humans to the role of puppets on the stage of history. Such an interpretation is, however, inconsistent with both the spirit
and the letter of Marx's system, and there is no better indication of the confusion and ignorance of Watkins' above remarks than the actual words of Marx to which Watkins' statement refers.

M. Proudhon the economist understands very well that men make cloth, linen, or silk materials in definite relations of production. But what he has not understood is that these definite social relations are just as much produced by men as linen, flax, etc. Social relations are closely bound up with productive forces. In acquiring new productive forces, men change their mode of production; and in changing their mode of production, in changing the way of earning their living, they change all their social relations. The handmill gives you society with the feudal lord; the steam engine, society with the industrial capitalist. 14

This quote shows clearly Marx's emphasis on human responsibility for social institutions, and that Watkins, by focusing on the last sentence along has distorted Marx's meaning. Marx emphasizes that "men change their mode of production (and)... all their social relations." 15 He does not deny the role of human agency in the formation of social relations, but simply recognizes that in order to understand the actions of people in society we must interpret them in terms of social classes to which individuals belong. One would not go too far to say that Watkins' criticism is, from a scholarly point of view, inexcusable.

I conclude this discussion of the methodological individualist criticism of Marx with two notes, either of which could lead to long arguments which I should not enter but which at least deserve mention. First, in order fully to understand the quote from Marx above, one must remember the role of dialectics in his theory. Whereas it might seem inconsistent to claim that society is both the product and the cause of human actions, one must bear in mind that dialectics presupposes interactions, rather than linear, mechanistic causation where there is an active cause and a passive effect. (Indeed, I would question whether understanding anything more than this is necessary in order to understand dialectics, in spite of many attempts to make it seem something mysterious.) For Marx, both sides of the relation are at once active and acted upon, and one must explain each in terms of the other.

Secondly, the presupposition of individuals as the primitive elements in social theory shows up throughout liberal capitalist social theory and is responsible for the failure of those theories to say much about the world today. One example, which will have to suffice for now, is John Rawls' social contract theory. Rawls argues that a complete theory of social justice can be derived from a hypothetical situation where a group of individuals, lacking any knowledge of their class position in society or of the class nature of the society in which they must finally live, reach agreement on principles of liberty and of the
distribution of wealth. Rawls' principles are sound and have considerable interest as a statement of necessary conditions for the achievement of justice, but are too thin in content to serve as sufficient conditions. Rawls himself concedes this without appreciating its significance when he points out that his theory is neutral with regard to the critical question of the choice between socialism and capitalism. In order to answer the latter question, one must cease viewing society as a collection of undifferentiated individuals and make one's primary focus the class relations that distinguish those individuals.

Popper's Critique of Marxism

Unlike Watkins, Popper is somewhat sympathetic to Marx and acknowledges his contribution to sociology. Nevertheless, he denies that Marxism is a scientific theory and presents no less than three arguments against it. The first is based on MI and is extremely weak in light of Popper's admission of Marx's contribution to sociology. The second is based on Popper's philosophy of science, and will be fully discussed only in the next section where that philosophy of science is critiqued in detail. The third appears in The Open Society and Its Enemies, of which Volume Two is devoted to Marx.

Popper commends Marx for recognizing the autonomy of sociology from psychology and for criticizing the doctrine of psychologism, a doctrine which is associated with Mill and which maintains that explanations of all social phenomena must ultimately reduce to statements about the psychology of individuals. Although psychologism obviously conforms to MI, and although Popper is himself a methodological individualist, he says the following about Marx's critique of psychologism.

The theory that sociology must in principle be reducible to social psychology, difficult though the reduction may be, has been widely held by many social thinkers; indeed, it is one of the theories which are often simply taken for granted. I shall call this approach to sociology (methodological) psychologism.... But Marx challenged it. 'Legal relationships,' he asserted, 'and the various political structures cannot... be explained by what has been called the general "progressiveness of the human mind."' To have questioned psychologism is perhaps the greatest achievement of Marx as a sociologist. By doing so, he opened the way to the more penetrating conception of a specific realm of sociological laws, and of a sociology which was at least partly autonomous.16

Popper notes that psychologism is incapable of explaining the development of human society because it supposes that there is an initial position in social development where human beings are unconditioned by society,
It is a desperate position because this theory of a pre-social human nature which explains the foundation of society -- a psychologistic version of the "social contract" -- is not only an historical myth, but also, as it were, a methodological myth. It can hardly be seriously discussed, for we have every reason to believe that man or rather his ancestor was social prior to being human (considering, for example, that language presupposes society).... If a reduction is to be attempted at all, it would therefore be more hopeful to attempt a reduction or interpretation of psychology in terms of sociology than the other way around.17

Popper seems so far to be opposing not only psychologism, but MI as well; the claim that sociology is prior to psychology suggests that individuals' behavior is best explained in terms of the society to which they belong rather than vice versa at least suggests a non-individualistic explanation. Popper, however, goes on to defend MI and denies that commitment to MI is inconsistent with his attack on psychologism.

Psychologism is correct only in so far as it insists upon what may be called 'methodological individualism' as opposed to 'methodological collectivism'; it rightly insists that the "behavior" and the "actions" of collectives, such as states of social groups, must be reduced to the behavior and to the actions of human individuals. But the belief that the choice of such an individualistic method implies the choice of a psychologistic method is mistaken (as will be shown below in this chapter) even though it may appear very convincing at first sight.18

Popper, however, strangely fails even to attempt to make good on his pledge; throughout the remainder of the discussion, MI is mentioned only once, when Popper merely repeats that we must not overlook the great merits which psychologism has acquired by advocating a methodological individualism and by opposing a methodological collectivism; for it lends support to the important doctrine that all social phenomena, and especially the functioning of all social institutions, should always be understood as resulting from the decisions, actions, attitudes, etc. of human individuals, and that we should never be satisfied by an explanation in terms of so-called "collectives" (states, nations, races, etc.). The mistake of psychologism is its
presumption that this methodological individualism in the field of social science implies the programme of reducing all social phenomena and all social regularities to psychological phenomena and psychological laws.¹⁹

The absence of an argument here is puzzling. If there are explanations which are reducible to individuals, but which do not explain those individuals' behavior in psychological terms, then what kind of explanations are they? Surely Popper would not deny that psychology is that social science which explains individual human behavior. Or if he would deny this, one would expect some further explanation for that denial. Instead, Popper offers nothing whatever in the way of explanation of his position.

Furthermore, as if to compound his difficulties, Popper opens the chapter of his book which we have been discussing by quoting approvingly the following "concise formulation of Marx's opposition to psychology": "It is not the consciousness of man that determines his existence — rather, it is his social existence that determines his consciousness."¹⁹ This sentence, however, is also a clear formulation of Marx's attack on methodological individualism; in it he is attacking the explanation of social events by individuals rather than explaining the individual's behavior as conditioned by society. Popper, after accepting Marx's statement of the primacy of social relationships over individual consciousness, fails to show that this position can be reconciled with MI. If anything, Popper, the methodological individualist, strengthens Marx's critique of that position.

Those familiar with Popper's philosophy of science know that for him the test of whether any proposed scientific theory is, in fact, scientific hinges on whether the theory is falsifiable. I shall later discuss and criticize this theory in detail, but for now, point out only some problems with Popper's attempted use of this method to criticize Marxism. Although my discussion of the method of falsification in the next section will reveal that the method is unsatisfactory, my discussion in this section does not rest on this; even if one accepts falsification, there are serious problems with Popper's use of it against Marxism.

Popper claims that Marxism, together with psychoanalysis, is a pseudo-science, that is, a theory which resembles a science but which upon scrutiny turns out not to be scientific. Pseudo-sciences, Popper says, make claims about the world and their predictions always seem to be true, but only because they have a logical structure which does not permit falsification. They are, in other words, tautological. Indeed, Popper arrived at his falsification methodology primarily as a means for showing that Marxism and psychoanalysis are unscientific.

I found that those of my friends who were admirers of Marx, Freud, and Adler, were impressed
by a number of points common to these theories, and especially by their apparent explanatory power. These theories appeared to be able to explain practically everything that happened within the fields to which they referred. The study of any of them seemed to have the effect of an intellectual conversion or revelation, opening your eyes to a new truth hidden from those not yet initiated.

The most characteristic element in this situation seemed to me the incessant stream of confirmations, of observations which 'verified' the theories in question; and this point was constantly emphasized by their adherents. A Marxist could not open a newspaper without finding on every page confirming evidence for his interpretation of history.

These considerations led me in the winter of 1919-20 to conclusions which I may now reformulate as follows.

(1) It is easy to obtain confirmations, or verifications, for nearly every theory -- if we look for verifications.

(2) Confirmations should count only if they are the result of risky predictions: that is to say, if, unenlightened by the theory in question, we should have expected an event which was incompatible with the theory -- an event which would have refuted the theory.

(3) Every 'good' scientific theory is a prohibition: it forbids certain things to happen. The more a theory forbids, the better it is.

(5) Every genuine test of a theory is an attempt to falsify it. Testability is falsifiability; but there are degrees of testability: some theories are more testable, more exposed to refutation, than others; they take, as it were, greater risks.

(7) Some genuinely testable theories, when found to be false, are still upheld by their admirers -- for example, by introducing ad hoc some auxiliary assumption, or by re-interpreting the theory ad hoc in such a way that it escapes refutation. Such a procedure is always possible, but it rescues the theory from refutation only at the price of destroying, or at least lowering, its scientific status.

One can sum up all this by saying that the criterion of the scientific status of a theory is its falsifiability, or refutability, or testability.

Popper distinguishes carefully a theory which is unfalsifiable and one which has been falsified, but allows that a theory which is
falsifiable and which has been falsified may become unfalsifiable and thus unscientific due to attempts by adherents to save it by introducing ad hoc hypotheses. Popper includes Marxism in this category. He does not deny that Marx put forward a genuine empirical theory, but maintains that this theory has not been consistent with experience and has been made unfalsifiable by contemporary Marxists' attempts to save it.

In Chapter 20 of The Open Society and Its Enemies, for example, Popper discusses Marx's economic theory and the predictions associated with it and tries to show that the predictions are false. He does not argue that the predictions are stated in such a way as to defy falsification. An examination of his arguments will show, however, that he fails to show that the theory has been falsified, and that one need not introduce ad hoc hypotheses in order to defend Marx. Popper simply fails to show that the theory has been disproved by history.

Popper focuses on two predictions made by Marx: that economic crises would continue to occur under capitalism and that workers would become increasingly miserable. He admits that many of Marx's claims were true for the nineteenth century, but says, "Marx was wrong when he prophesied that the conditions which he observed were to be permanent if not changed by a revolution, and even more when he prophesied that they would get worse. The facts have refuted these prophecies." This argument rests on two premises which we must now examine. First, Popper maintains that the development of capitalism has improved the lot of the workers, and second, he claims that intervention in economic affairs by the government such as that suggested by Keynes can successfully stabilize capitalism.

Marx's terrible picture of the economy of his time is only too true. But his law that misery must increase together with accumulation does not hold. Means of production have accumulated and the productivity of labour has increased since his day to an extent which even he would hardly have thought possible. But child labour, working hours, the agony of toil, and the precariousness of the worker's existence, have not increased; they have declined. I do not say that this process must continue. There is no law of progress, and everything will depend on ourselves. But the actual situation is briefly and fairly summed up by Parkes in one sentence: 'Low wages, long hours, and child labour have been characteristic of capitalism not, as Marx predicted, in its old age, but in its infancy.'

Unrestrained capitalism is gone. Since the days of Marx, democratic interventionism has made immense advances, and the improved productivity of labour -- a consequence of the accumulation of capital -- has made it possible virtually to stamp out misery. This shows that much has been achieved,
in spite of undoubtedly grave mistakes, and it should encourage us to believe that more can be done.\textsuperscript{22}

The question of the increasing or decreasing misery of the workers under capitalism is complicated, but it is certainly not as obvious as Popper makes out that conditions have improved. Popper interprets Marx to mean that workers will have less and less as the capitalist system continues to develop; if the workers acquire a greater number of goods, then their misery decreases and if they get fewer goods, then their misery increases. On this interpretation Marx's claim that the misery of workers increases as the system develops clearly seems refuted; a century ago workers lacked such commonplace goods as cars, washing machines, refrigerators, and televisions. As Popper points out, the increasing accumulation of the capitalist economy has extended the consumption of workers beyond what even the ruling classes had several centuries ago. Popper regards any attempt by Marxists to re-interpret this claim in relative, rather than absolute, terms as an auxiliary hypothesis which is introduced in order to save the theory from an obvious conflict with its own prediction.

The introduction of such theory-saving auxiliary hypotheses, however, generally occurs after problems with the theory have already arisen, whereas Marx defined subsistence wages which are paid workers under capitalism in relative terms even in Vol. I of Capital. In fact, if we define subsistence, poverty, or any measure of real income in absolute terms (i.e., as a measure of the total quantity of goods possessed by workers, rather than in terms of a standard which is relative to the development of the productive forces at a given time), then one would have to say that the real income of workers has always risen throughout history, and there would never be any basis for criticizing an existing society. A characteristic of society has always been the increase of output over time, and Marx contended that the only fair measure of how well off people are is in relation to the total output which is, at the time, the norm. This is why Marx measures exploitation by the share of the total output which goes to the workers, rather than in absolute terms. It is a distortion of the theory to maintain that Marx ever maintained otherwise, or that he should have maintained otherwise. This defense of Marx is by no means an ad hoc hypothesis introduced in order to save the theory from observation; it is simply the correct interpretation of what Marx always intended.\textsuperscript{23}

There is, however, an even more important aspect of Marx's theory of the increasing misery of the workers under capitalism which Popper misses. Marx does not maintain that at any time which one chooses, the workers are worse off than at any previous time. In fact, there are periods which allow for an actual improvement of the workers' condition. When the capitalist economy is functioning at its best, with close to full employment and high output, the workers benefit and enjoy a better standard of living than during a recession or depression. Marx saw a revolution occurring only during a crisis of the capitalist system,
and the relevance of the premise of increasing misery relates not to the condition of the workers at any selected time, but to their condition during a crisis. We must therefore understand Marx's claim about the increasing misery of the workers as a claim about the course of the crises of the capitalist system; if recent depressions have resulted in greater misery than previous ones, then Marx's claim is substantiated.

This brings us to Popper's second premise about the recurrence of crises under capitalism. Popper seems to think that recent depressions have become less severe; he says, for example, "the standard of living of employed workers has risen everywhere since Marx's day; and (as Parkes has emphasized in his criticism of Marx) the real wages of employed workers tend even to increase during a depression (they did so, for example, during the last great depression) owing to a more rapid fall in prices than in wages." History, however, clearly seems more with Marx on this point than with Popper, and it seems as if Popper is the one who is looking for facts which would coincide with his view. The last depression clearly had an impact far beyond that of any previous one. Following the last depression, labor unions finally exploded into prominence with the large-scale successful organizing drives of the CIO and the first successful strikes against the major auto plants of General Motors in Michigan. An equally significant result of the depression was the triumph of Keynesian economics and the previously unheard of attempt to control the economy by means of government intervention. Only an economic crisis of unprecedented proportions could have ushered in such sweeping changes as these. Furthermore, dozens of newsreels and such books as Studs Terkel's Hard Times, which contains interviews with many survivors of the last depression, are sufficient to show that Popper's claims are without substance.

Yet another indication of the ad hoc character of Popper's (and Parkes') argument is the use only of the wages of employed workers in the argument, as if those workers who were laid off during the depression were not really workers. This not only begs the question against Marx, who so obviously includes the industrial reserve army in the working class that it is hard to comprehend how Popper could have missed it, but it is unsubstantiated and counter-intuitive as well. Popper's argument says, in effect, that the Great Depression was not so tragic an event after all, so long as we ignore its effects on the millions of workers who were laid off.

Popper this fails to show that Marx's claim that misery increases under capitalism as the system develops is false. In order to decide how miserable people were in the Great Depression of the 1930's compared with any previous crisis, we should look not at how much they had compared with paupers in the mid-nineteenth century, but at the repercussions of that crisis for the capitalist system compared with previous crises. We should look not at how much people had, but at how much they lost. If we do so, then Marx's thesis appears to be a claim which is consistent with history, as opposed to the ad hoc auxiliary hypothesis which Popper claims it is. In this particular argument, Popper's
proposed falsification of Marx fails completely, and is actually far more ad hoc than Marx's argument.

The remainder of Popper's argument faces equally severe problems. As an alternative to Marx's revolutionary solution to social problems, Popper proposes piecemeal solutions which rely on government intervention to find solutions to problems on a one-by-one basis, as suggested in the quote on page 20, above. This solution relies heavily on Keynesian economic theory, a theory which has hailed as revolutionary a generation ago, but which is now being widely called into question. This theory claims that it is possible to solve the age-old capitalist problem of recurring economic crises, but does not seem particularly capable of accomplishing that today. We need not rely on ad hoc hypotheses in order to save Marxism from falsification due to its claim that capitalism will undergo a series of economic crises; indeed, the claim may well be among the strengths of Marxist theory, rather than a weakness which must be explained away.

Popper's only remaining argument against Marx fails to falsify the theory, but is well-taken nevertheless. Marx predicted the eventual demise of capitalism over a century ago, and evidently felt that capitalism would fall during his own lifetime or shortly thereafter. Interpreting Marx as a scientist proposing a testable theory, we should interpret the prediction of the fall of capitalism as a potential falsifier of the Marxian theory and have the courage, according to Popper, to specify when that prediction should come true. If this then does not occur, we should give up the theory.

The merit of the argument is that it isolates a problem of the utmost importance. Contemporary Marxism must not simply take refuge in Marx's works, but take up the question of why capitalism has persevered so long and under what conditions this might change. To ignore this question, or to deny its importance simply because it is raised by an apologist of the capitalist order, is to refuse to consider one of the important questions of the day which confronts Marxism. I must postpone consideration of this question until later chapters, but for now, I confine myself to explaining why it fails as a refutation of Marx's theory.

In order to do so, we must turn to recent criticism of Popper's philosophy of science by Kuhn and Lakatos.

Kuhn and Lakatos' Attack on Falsificationism

As philosophers of science have paid increasing attention to the history of the sciences, they have found Popper's and the positivists' accounts of the nature of science less and less plausible. The opening remarks of Kuhn's *The Structure of Scientific Revolutions* summarizes the new historical approach to the philosophy of science:
History, if viewed as a repository for more than anecdote or chronology, could produce a decisive transformation in the image of science by which we are now possessed. That image has previously been drawn, even by scientists themselves, mainly from the study of finished scientific achievements as these are recorded in the classics and, more recently, in the textbooks from which each new scientific generation learns to practice its trade. Inevitably, however, the aim of such books is persuasive and pedagogic; a concept of science drawn from them is no more likely to fit the enterprise that produced them than an image of a national culture drawn from a tourist brochure or a language text. This essay attempts to show that we have been misled by them in fundamental ways. Its aim is a sketch of the quite different concept of science that can emerge from the historical record of the research activity itself.\(^{25}\)

Kuhn, Lakatos, and most of the philosophers in this new historical school, confine their studies to the natural sciences. A number of social scientists have been influenced by this school (and particularly by Kuhn's work),\(^{26}\) but few have applied it to the debate between Marxism and capitalism. The remainder of this chapter does so and in so doing clarifies the debate between the Marxist and capitalist social theories.

The first important result of the historical school is that Popper's criticism that Marxism is unfalsifiable -- a criticism which is sometimes stated in terms of Marxists' refusal to recognize falsifying evidence -- is beside the point. Even Lakatos, a member of the historical school who actually defends Popper's general account of science, admits that "exactly the most admired scientific theories simply fail to forbid any observable state of affairs."\(^{27}\) The history of science reveals, in other works, that scientists almost never look for evidence which would falsify their theories. Kuhn drives this point home in discussing an interesting gestalt psychology experiment where subjects were unable to pick out correctly anomalous playing cards such as black hearts or red spades.

In science, as in the playing card experiment, novelty emerges only with difficulty, manifested by resistance, against a background provided by expectation. Initially, only the anticipated and usual are experienced even under circumstances where anomaly is later to be observed. Further acquaintance, however, does result in awareness of something wrong or does relate the effect to something that has gone wrong before. That awareness of anomaly opens a period in which conceptual categories are adjusted until the
initially anomalous has become the anticipated. At this point the discovery has been completed.28

Thus, Marxists who adhere to the Marxian theory in the face of anomalous evidence are behaving no differently than other scientists.

The correctness of this general view of science is by now widely recognized, even by Popper, who admits that he was previously "at best only dimly aware of (it)" and that it is something that is of great importance.29 And it is interesting that Popper accuses Marxists of failure to criticize Marxist theory while the normal practice of capitalist economics so clearly exhibits the uncritical attitude which Kuhn discusses. One never hears economists specify conditions for falsification of their paradigm; the presumption is that the theory is true and questions about its possible falsification need not be addressed. When we are presented with economic data, for example, the question of the meaning of the data for the truth or falsity of the prevailing economic theory never comes up; the data are rather applied to the solution of a problem such as unemployment or inflation where the problem-solving ability of the capitalist theory in question is assumed rather than questioned.

Ironically, Popper himself never raises the question of the falsification of liberal capitalist theory and assumes its ability to solve economic problems.30 This suggests that Popper has not been true to the demands of his own theory of science. Lakatos says that "Popper's distinction lies in his having grasped the full implications of the collapse of the best corroborated scientific theory of all times: Newtonian mechanics and the Newtonian theory of gravitation."31 But although he recognizes that scientific progress results from the replacement of outdated established theories with revolutionary new ones, he develops his method in response to and applies it most severely to a theory which is not even established. He fails to consider even for a moment that capitalist theory could suffer a collapse similar to that suffered by Newtonian theory.

We can, then, safely dismiss Popper's attempt to refute Marxism based upon its being unfalsifiable. There are, however, other important implications for the debate between Marxism and capitalism.

Notwithstanding the importance of Kuhn's contribution, there is an important problem with his theory of science which we must examine. Although he correctly emphasizes the history of science as necessary for understanding the scientific method, his substitution of the sociology of science for the logic of science presents difficulties to one who is attempting to decide which theory is correct not in retrospect, but in the midst of a scientific crisis or revolution. We are interested in Marxist and liberal social theory today, and Kuhn offers us no guidance on how to decide between the two. While he argues convincingly that the model of "naive falsificationism"32 is false, Kuhn offers nothing to replace this model. On his view, there is no criterion for evaluating competing paradigms.
Kuhn's position might at first seem compatible with Marxism. Marx, after all, claimed that the ultimate superiority of his theory would be demonstrated by its eventual triumph, a position which Kuhn likewise takes. Furthermore, Kuhn's theory has been well received by the Marxist economists Paul Sweezy and Maurice Dobb. But although Marx would agree with Kuhn that only the eventual triumph of socialism demonstrates the superiority of Marxist theory, this does not mean that one must wait until after the revolution in order to discover the truth of Marxist theory. On the contrary, Marx went to great lengths to produce an argument which explains the superiority of socialism over capitalism, and claimed that by understanding his theory one can understand before the occurrence of the revolution why his theory is superior.

In order to see more clearly where Marx must depart from Kuhn, consider Kuhn's most explicit remarks on how to decide between scientific theories and how they might apply to the choice between Marxist and capitalist social theory. "In particular, confronted with the problem of theory-choice," he says, "the structure of my response runs roughly as follows: take a group of the ablest available people with the most appropriate motivation; train them in some science and in the specialties relevant to the choice at hand; imbue them with the value system, the ideology current in their discipline (and to a great extent in other scientific fields as well); and finally, let them make the choice. If that technique does not account for scientific development as we know it then no other will. There can be no set of rules of choice adequate to dictate desired individual behaviour in the concrete cases that scientists will meet in the course of their careers. Whatever scientific progress may be, we must account for it by examining the nature of the scientific group, discovering what it values, what it tolerates, and what it disdains." Notice that this response answers our question of choice between rival paradigms only in retrospect, and denies that there is any way of accounting for the individual theorist's (or person's) choice of a theory. Kuhn cannot help one decide whether to accept Marxist theory, although it is the latter question which requires an answer.

Kuhn might respond by denying that any such answer is possible, but this response is unsatisfactory for at least three reasons. First, Kuhn fails to describe the characteristics which define the class of professionals, and evidently thinks it evident; they are those who are "ablest", "motivated", "trained" in the science, and "imbued" with the values and ideology current in their discipline. When we attempt to spell out this characterization in any detail and apply it to the history of science, however, problems arise. To begin with, the word "ablest" raises the obvious problem of who are the ablest people in a given field. Since Kuhn recognizes the tendency for adherents of rival paradigms to talk past one another, those who are unable to understand a given viewpoint may seem irrational to one group of experts in a field committed to the reigning paradigm. Opponents of an established paradigm thus may not seem very able. Furthermore, if training in a
speciality beyond self-education is required, and if one must receive some form of professional certification in order to qualify as a judge, then important cases in the history of science will not qualify as science, including Darwin and Mendel to name just two. Even Einstein's recognition in his field came slowly and with difficulty, and one might have made a case against including him as a professional who has competent to judge the Newtonian paradigm. Finally, Kuhn's requirement that the scientist be imbued with the prevailing values in the field would eliminate Copernicus and his followers, who challenged the supreme value of a human-centered universe; a value which surely must be included as one recognized and emphasized by the science of Copernicus's time.

This problem is particularly severe when viewed from a Marxist point of view. According to Marx, the revolution is accomplished by and for the working class; society and the science of society change at once, when the working class rebels and takes control of the means of production and of society. Marx clearly intended his theory to be judged by the working class, and saw them as competent to judge theories of society. Whatever one might think of this account of competency, it is clearly the only one which is consistent with Marxism. Kuhn, on the other hand, evidently would leave the choice to social scientists.

This Marxist view does not, of course, exclude Marxist intellectuals from those who are competent to decide among theories of society. The contribution of theory is no less important to Marxism than it was to capitalism, and we should expect some important theoretical contributions from Marxist social scientists. My point is that the community which ultimately decides which theory will triumph is the working class, not the intellectuals. No Marxist can be comfortable with Kuhn's account of leaving the choice between social theories to the professionals.

Kuhn's second problem is historical accuracy. It was not trained professionals alone who were responsible for the triumph of the scientific revolution which originated with Copernicus and climaxed with Newton. As I have already noted, and as is amply documented elsewhere, that revolution was but one element of a larger social revolution which weakened the hold of religious doctrine over society as a whole, and which included as other essential elements the Reformation and liberal political theory. There is little doubt that without these three revolutions together, the acceptance by society as a whole of a new world view which included the autonomy of science and politics from religion, the scientific revolution could not have succeeded. Kuhn's method of letting the professionals decide thus fails as an historical account of one of the most important scientific revolutions.

Finally, Kuhn himself recognizes that even scientists require criteria for choosing among theories when the time comes for such choices. So long as the development of a paradigm is in a stable period of normal science, the lack of a criterion for evaluating theories
is unimportant and raises no practical problems. During such a period, the scientist goes about her/his work of solving the paradigm's current puzzles without having to raise the question of the correctness of the paradigm; there is no need for a criterion of theory choice. Eventually, however, science leaves behind this "normal" situation and enters a crisis. One or more of the puzzles resists solution over time, becomes particularly important, and precipitates a crisis. When such a crisis arises, the question of the truth or falsity of the reigning paradigm arises anew, and scientists then require criteria for evaluating theories.

Kuhn is aware too of the importance of philosophy of science in assisting with the resolution of crises. He points out that "it is... particularly in periods of acknowledged crisis that scientists have turned to philosophical analysis as a device for unlocking the riddles of their field," and that "it is no accident that the emergence of Newtonian physics in the seventeenth century and of relativity and quantum mechanics in the twentieth should have been both preceded and accompanied by fundamental philosophical analyses of the contemporary research tradition." Kuhn also acknowledges that this philosophical analysis "is perfectly calculated to expose the old paradigm to existing knowledge in ways that isolate the root of crisis with a clarity unattainable in the laboratory."

Kuhn fails to integrate his insightful perception of the development of crisis into his account of scientific change. Although he allows that philosophy of science is crucial to the resolution of crises in science, his own philosophy of science fails to offer any insights into how such crises are resolved. The title of his book, The Structure of Scientific Revolutions, is, in fact, a misnomer. Kuhn argues successfully that most science is non-critical, normal science and describes well the structure of this normal science. He shows that the discovery of anomaly which must precede the criticism of any established theory comes slowly and with difficulty. When it comes to the description of the revolutionary process, however, Kuhn's account is vague.

Kuhn tells us, for example, that "if an anomaly is to evoke crisis, it must be more than just an anomaly," and that two of the characteristics of anomalies which have provoked crises are problems related to practical applications of the theory and the amount of time and energy which scientists have devoted to unsuccessful attempts to solve the problem, but this is obviously incomplete and at best sketchy. He goes on to talk about crises arising "for these reasons or others like them," without elaborating on what these other reasons might be.

Furthermore, when an anomaly has proved particularly stubborn, scientists need not turn to another paradigm, but may instead "conclude that no solution will be forthcoming in the present state of their field. The problem is labelled and set aside for a future generation with more developed tools." He concludes his section on "the response to crisis"
by pointing out that "this section and the two preceding have edued
(sic) numerous criteria of a breakdown in normal scientific activity,
criteria that do not at all depend upon whether breakdown is succeeded by
revolution."\textsuperscript{44} And the succeeding sections on scientific revolutions do
not explain the conditions which distinguish crises which lead to revol-
utions from crises which do not. Kuhn instead devotes his time to
explaining that a competing paradigm represents complete "changes of
world view"\textsuperscript{45} which cannot be chosen by rules of logic and experiment
alone, and which offers arguments which are circular when compared with
those of a competing paradigm.

Thus, when we ask Kuhn for help in deciding among Marxist and
capitalist paradigms of society, or for that matter between any competing
scientific theories, he can tell us only that the arguments are circular.
This answer is hardly helpful in deciding which theory to accept. Kuhn's
time is perhaps of some use in understanding scientific revolutions
which have already occurred, and raises some important criticisms of
previous attempts to account for change in science. But when we attempt
to apply Kuhn's theory to contemporary debates, he can offer no guidance.
His answer would seem simply to be that we must wait until the experts
have made up their minds on the question.

I have been arguing that our choice of whether to accept Marxism
or capitalism requires some criteria for choosing between the rival
theories. We have seen that even Kuhn concedes that this is a legitimate
role for philosophical analysis (and presumably also for philosophy of
science). Lakatos addresses this same concern and attempts to answer it
by reviving falsificationism, but in so doing ends up closer to a Kuhnian
view of science than a Popperian one. Nevertheless, Lakatos is important
for raising again the question of criteria for science, and his theory
is worth examining.

We have seen how far Lakatos departs from Popper's view of falsi-
fication.\textsuperscript{46} His familiarity with the history of science has taught him
that scientists often overlook potential falsifiers, and that doing so
is not irrational. When an experimental result contradicts a powerful,
entrenched research program (Lakatos' equivalent of Kuhn's paradigm), it
is always possible to place the blame on the experimenter rather than
upon the theory, or to claim that there are interfering conditions which
have prevented the scientist from attaining the result which the theory
predicts. Consider, for example, the following imaginary case of
planetary misbehavior and how a Newtonian physicist might account for
such deviations from Newton's laws.

Does our Newtonian physicist consider that the
deviation was forbidden by Newton's theory and there-
fore that, once established, it refutes the theory
N? No. He suggests that there must be a hitherto
unknown planet p' which perturbs the path of p. He
calculates the mass, orbit, etc., of this hypothetical
planet and then asks an experimental astronomer to
test his hypothesis. The planet p' is so small that even the biggest available telescopes cannot possibly observe it: the experimental astronomer applies for a research grant to build yet a bigger one. In three years' time the new telescope is ready. Were the unknown planet p' to be discovered, it would be hailed as a new victory of Newtonian science. But it is not. Does our scientist abandon Newton's theory and his idea of the perturbing planet? No. He suggests that a cloud of cosmic dust hides the planet from us. He calculates the location and properties of this cloud and asks for a research grant to send up a satellite to test his calculations....

Lakatos' story goes on through several more auxiliary hypotheses. It ends with either a new auxiliary hypothesis, "or... the whole story is buried in the dusty volumes of periodicals and the story never mentioned again."

Recognizing the problems with actually falsifying scientific theories, yet wanting to save falsificationism, Lakatos presents a scheme of three versions of falsification: dogmatic falsificationism (DF), naive methodological falsificationism (NF), and sophisticated methodological falsificationism (SF). DF is often attributed to Popper, although he gave up the position prior to publishing anything on philosophy of science. It maintains that scientific theories can be disproved, and thus commits one to the infallibility of observation statements and to a sharp theory-observation distinction. Lakatos recognizes the untenability of this distinction and points out that Popper never maintained it in any published work.

DF's problems with the thesis that observation statements are infallible leads Lakatos to reject all "justificationist" epistemologies and to embrace fallibilism, which recognizes that proven knowledge is an unattainable ideal. In light of this, the questions which confront the epistemologist and philosopher of science are, "Can we save scientific criticism from fallibilism? Is it possible to have a fallibilistic theory of scientific progress? In particular, if scientific criticism is fallible, on what ground can we ever eliminate a theory?" One answer is provided by NF, which "differs from dogmatic falsificationism in holding that the truth value of [observation] statements cannot be proved by facts but, in some cases, may be decided by agreement." This means simply that observation statements are treated as unproblematic not due to some special feature which they possess, but due to an agreement by scientists to treat them as such.

This version of falsificationism solves the problem arising from the reliance of DF on the theory-observation distinction, and has a demarcation criterion between science and non-science which "is much more liberal than the dogmatic one. Methodological falsificationism opens up
new avenues of criticism: many more theories may qualify as 'scientific.'\textsuperscript{54} Since NF is fallibilistic, it recognizes the risks involved in accepting an observation statement as unproblematic, and forges ahead in the face of those risks. There is, however, another decision which the naive falsificationist must take which is even more risky, viz., the decision to treat a ceteris paribus clause as unproblematic background knowledge.

We noted earlier\textsuperscript{55} that stubborn theoreticians are often able to save a theory from inconsistency with observations by explaining the observations as due to disturbing conditions. The naive falsificationist recognizes that in order for such a theory to be falsified, a final test of the theory must at some time take place where such explanations will not be permitted and the ceteris paribus clause will be relegated into the unproblematic background knowledge. In such a case, the theoretician must decide "to promote one of the hundreds of 'anomalous phenomena into a crucial experiment' and decide that in such a case the experiment was 'controlled.'\textsuperscript{56}

NF thus represents an important advance in the philosophy of science and epistemology as well, and Lakatos has the greatest respect for it.

One has to appreciate the dare-devil attitude of our methodological falsificationist. He feels himself to be a hero who, faced with two catastrophic alternatives, dared to reflect coolly on their relative merits and choose the lesser evil. One of the alternatives was sceptical fallibilism, with its 'anything goes' attitude, the despairing abandonment of all intellectual standards, and hence of the idea of scientific progress. Nothing can be established, nothing can be rejected, nothing even communicated: the growth of science is a growth of chaos, a veritable Babel.... Our methodological falsificationist proudly rejects such escapism: he dares to measure up to the full impact of fallibilism and yet escape scepticism by a daring and risky conventionalist policy, with no dogmas. He is fully aware of the risks, but insists that one has to choose between some sort of methodological falsificationism and irrationalism. He offers a game in which one has little hope of winning but claims that it is still better to play than to give up.\textsuperscript{57}

The first part of these remarks is aimed at Kuhn, and Lakatos' complimentary remarks toward NF underscore his concern to explain how the history of science can be viewed as a rational process. Again, however, his awareness of the history of science prevents Lakatos from accepting NF as an adequate description of the scientific method, for the history of science simply does not conform to the principles of NF: "If we look at
history of science, if we try to see how some of the most celebrated falsifications happened, we have to come to the conclusion that either some of them are plainly irrational, or that they rest on rationality principles radically different from the ones we just discussed.\textsuperscript{58}

First of all, Lakatos notes, experimental verdicts are frequently reversed, and the method of NF allows no place for successful appeals once falsification has occurred. Furthermore, ceteris paribus clauses continue to raise problems for NF as well as for DF: "falsification as it occurs in actual history is \textit{prima facie} irrational by the standards of our falsificationist. By his standards, scientists frequently seem to be irrationally slow; for instance, eighty five years elapsed between the acceptance of the perihelion of Mercury as an anomaly and its acceptance as a falsification of Newton's theory, in spite of the fact that the ceteris paribus clause was reasonably well corroborated.\textsuperscript{59}"

These failures to account for the actual history of scientific progress require a further version of methodological falsificationism, which Lakatos embraces as his own and calls "Sophisticated Methodological Falsificationism" (SF).

SF goes much further than NF in loosening the criteria for science. In developing the methodology of SF, Lakatos departs from Popper's version of falsificationism at several key points, and acknowledges that Popper himself held at most only \textit{some} elements of SF, although Popper's work was the inspiration for Lakatos' SF. Popper, although on the right track, failed to examine the history of science closely enough and thus did not develop his falsification into the sophisticated version required in order to account for the history of science. Lakatos claims to complete this Popperian research program with the development of SF.\textsuperscript{60}

The first difference between SF and NF is the amount of time which is required in order to refute a theory. With the development of SF, Lakatos proclaims the "end of instant rationality." NF, and specifically Popper, require that \textit{criteria of refutation} have to be laid down beforehand; it must be agreed, which observable situations, if actually observed, mean that the theory is refuted.\textsuperscript{61} This entails that an experiment which becomes a crucial experiment can, upon the attainment of a given result, instantly refute a scientific theory once and for all -- an entailment which cannot, Lakatos says, be brought into conformity with the history of science. "\textit{There are}," Lakatos notes, "\textit{no such things as crucial experiments}, at least not if these are meant to be experiments which can instantly overthrow a research program."\textsuperscript{62}

Two important reasons for the slowness of scientific change are an appeal procedure which theoreticians may use in order to save a theory from unfavorable experimental results, and the comeback ability of a theory which has apparently been overthrown. In order for an experiment to count as a refutation of a theory, the experimental results must receive an interpretation. The experiment is thus based upon an \textit{interpretative theory}, and the theoretician can reject this interpretative
theory in favor of another which would make the experiment consistent with the research program in question. This appeal procedure slows the process of overthrowing research programs considerably.

The comeback ability of firmly established theories makes it difficult to determine whether a so-called "crucial experiment" is really crucial. "A rash scientist may claim that his experiment defeated a programme and parts of the scientific community may even, rashly, accept his claim. But if a scientist in the 'defeated' camp puts forward a few years later a scientific explanation of the allegedly defeated programme, the honorific title may be withdrawn and the 'crucial experiment' may turn from a defeat into a new victory for the programme."63

These features of science have led Lakatos far from the version of falsificationism which Popper held. Whereas Popper always maintained that the scientific method requires that one specify in advance an experimental result which would be sufficient to refute a theory, Lakatos acknowledges that "Minerva's owl flies at dusk;"64 that is, one cannot know that a theory has been refuted until after the refutation has occurred, all appeals have been exhausted, and another theory has taken the place of the former. Furthermore, for at least some time after the refutation has occurred, one must watch for a comeback by the refuted theory.

Indeed, at this point one might ask whether there is a significant difference between the accounts of science given by Kuhn and Lakatos. Clearly, Lakatos wants to employ a fallibilistic method in order to save rational criteria in science from Kuhn's historical attacks, but how has he succeeded? Lakatos himself further obscures the issue when he relates his own views to those of his mentor Popper.

My account of scientific rationality, although based on Popper's, leads away from some of his general ideas.... In (my) view, scientists... are not irrational when they tend to ignore counter-examples .... Thus the dogmatism of 'normal science' does not prevent growth as long as we combine it with the Popperian recognition that there is good, progressive normal science and that there is bad.65

This description of his differences from Popper is clearly understated; there can be no more radical departure from Popper's philosophy of science than to admit that scientists can rationally ignore counter-examples. Furthermore, the last sentence of the quote hardly succeeds in distinguishing Lakatos from Kuhn, since Kuhn certainly agrees that there is both good and bad normal science.

Lakatos and Kuhn, in fact, differ only in where they place the emphasis in their respective definitions of science. Both agree that science is sometimes non-critical (as during periods of "normal science") and sometimes critical (as during periods of "revolutionary science").
Both likewise agree that both normal and revolutionary science are acceptable forms of scientific practice. But the difference in emphasis — Kuhn on normal science and Lakatos on revolutionary science — is crucial in their understandings of science; although both recognize the two kinds of practice, each of them recognizes a different kind as definitive of science.

One clear way to see the difference between Kuhn's and Lakatos' views of science is the compare Lakatos' differences with Popper (quoted in the preceding paragraph) with Kuhn's criticism of Popper. Kuhn says,

I suggest then that Sir Karl has characterized the entire scientific enterprise in terms that apply only to its occasional revolutionary parts.... A careful look at the scientific enterprise suggests that it is normal science, in which Sir Karl's sort of testing does not occur, rather than extraordinary science which most nearly distinguishes science from other enterprises. If a demarcation criterion exists (we must not, I think, seek a sharp or decisive one), it may lie just in that part of science which Sir Karl ignores.66

Unlike Lakatos, who criticizes Popper for presenting a too-strict account of falsification which would falsify many classic examples of science, Kuhn criticizes Popper for presenting an account of science which even relies on criticism. Kuhn maintains that because most scientists are not critical most of the time, science is best understood in non-critical terms. Lakatos, on the other hand, recognizes that most scientists are not critical most of the time,67 but maintains that nevertheless science must be understood as a critical enterprise where theories are not just applied to the solution of puzzles, but are appraised on the basis of their performance.

Kuhn points out that Lakatos, notwithstanding his emphasis on the importance of criticism, fails to present a critical theory of science. We have already seen how close Lakatos comes to Kuhn in loosening the criteria for falsification in his sophisticated methodological falsificationism (SF). Kuhn also points out in his "Reflections on my Critics" that there is no real basis for Lakatos to distinguish his view from that of Kuhn himself. Kuhn points out,

Certainly he does little to specify algorithms by which the decisions he demands are to be made, and the tenor of his discussion of naive and dogmatic falsificationism suggests that he no longer thinks such specification possible. In that case, however, his decision-imperatives are, in form though not always in content, identical to my own. They specify ideological commitments which scientists must share if their enterprise is to succeed. They
are therefore irreducibly sociological in the same sense and to the same extent as my explanatory principles.

Under these circumstances I am not sure what Lakatos is criticizing or what, in this area, he thinks we disagree about.\textsuperscript{68}

But although Lakatos has not presented a successful method for deciding among scientific theories (or among theories which claim to be scientific), Kuhn understates the importance of Lakatos' mere difference in emphasis. Lakatos offers nothing more than a re-statement of the importance of criticism in science. He simply calls our attention to the choice among paradigms or research programs which scientists are compelled to make in revolutionary situations (and in crises in general), but in calling our attention to this choice rather than to normal science, Lakatos proposes a perspective on science which is radically different from Kuhn's.

I have presented some reasons for the acceptability of Lakatos criterion over Kuhn's, and argued that only Lakatos' emphasis on criticism allows us to evaluate theories in the present, rather than merely in retrospect. Kuhn would reply that, "whatever their pedagogic utility and their abstract plausibility, those notions [do] not fit the enterprise that historical study [displays].\textsuperscript{69} Now if we decide that science is best characterized by the approach which most scientists employ most of the time, then this criticism is correct. This, however, would be a most misleading definition to employ. A criterion of science should account for the increase in knowledge which the employment of scientific methods has produced through history. What is most impressive about science is that there is a clear and unequivocal increase in knowledge of the universe from, for example, Ptolemy through modern radio astronomy. Lakatos maintains that in order for the philosophy of science to account for this increase in knowledge, it must focus on the process of scientific revolutions.

Now Kuhn would doubtless agree that a better understanding of the revolutionary process in science would be a clear gain for philosophy of science and, as we shall discover, himself offers as much to clarifying the question as does Lakatos. But his definition of science, in focusing attention on normal science as most constitutive of science, reflects a greater interest in normal science. Lakatos successfully criticizes Kuhn for his misplaced focus and argues that science must be understood as a critical process where theories are evaluated and accepted or rejected. In order to move toward a better understanding of this revolutionary process, we turn to the role of crucial experiments in science and draw upon both Kuhn and Lakatos in order to clarify how they can lead to scientific revolutions.
The Importance of Crucial Experiments

We now find ourselves in a difficult situation. Kuhn has failed to show that criteria for appraising scientific theories are unnecessary, and in fact admits that such criteria are essential in resolving the crises which periodically arise in science. Lakatos, on the other hand, objects to Kuhn's denial that the provision of criteria is the primary objective of the philosophy of science. But although he presents a case for criteria in science, he fails to provide any such criteria and shows only the shortcomings of previous falsificationist attempts. We thus still lack the criteria which we require in order to evaluate and compare Marxism and capitalism (or for that matter, any scientific theories).

Although difficult, however, the situation is not hopeless. If we draw upon some points of agreement found in Kuhn's and Lakatos' writings, and correct a major flaw in Lakatos' Sophisticated Falsificationism, we can arrive at a methodological principle that is sufficient to guide us in our project. We cannot, of course, completely resolve the question of the correct solution to the problem of criteria in science. Such a task would require an extensive study which is not presently possible. We can, however, resolve the problem so far as is necessary for our purposes. The key is to explain the role which crucial experiments play in science, for it is just such an experiment which we must discover in order to compare Marxist and capitalist social theory.

A crucial experiment is science's response to a crisis. The recognition of a crisis is less difficult than the explanation of how the crisis is to be resolved. Although Kuhn's account of how crises arise and how they are resolved is rather sketchy, he does at least provide insight into how to recognize them.

When... an anomaly comes to seem more than just another puzzle of normal science, the transition to crisis has begun. The anomaly itself now comes to be more generally recognized as such by the profession. More and more attention is devoted to it by more and more of the field's most eminent men. If it still continues to resist, as it usually does not, many of them may come to view its resolution as the subject matter of their discipline. For them, the field will no longer look quite the same as it had earlier.... Though there is still a paradigm, few practitioners prove to be entirely agreed about what it is. Even formerly standard solutions of solved problems are called in question.

Although we have here no precise description of how a crisis develops, Kuhn has at least supplied us with a relatively easy way to recognize one when it exists. Scientists in increasing numbers begin to pay...
attention to one particular puzzle and increasingly see the resolution of that puzzle as the most important task of their field, and indeed in many cases as definitive of their field, and that this is happening is decidable simply by observing the practice of scientists in that field.

This, incidentally, does not entail that all scientists recognize their work on the anomaly as an attempt to resolve a crisis in their field. Many scientists working to solve a critical problem may be entirely confident that the problem is solvable by the reigning theory and deny the possibility of the collapse of the theory. Of course, as the crisis deepens, awareness of a crisis will increase within the field, but even if all of the scientists working on a problem were to deny that the reigning theory might fall, there would still be grounds for claiming that a crisis exists. The important questions pertain to how much attention the anomaly has attracted and how long it resists solution.

One important aspect of a crisis is the increased focus on one problem or on a small number of problems. In most cases, a particular problem will resist solution over time and other problems will be set aside for later. Kuhn and Lakatos both discuss a number of important case studies from the natural sciences which illustrate this point, and in the next chapter, I shall do likewise for economic theory. I shall therefore sidestep discussion of why such a focus of attention is important for the development and resolution of crises in science and rely simply on the fact that it is characteristic of crises.

Kuhn and Lakatos agree that the process of resolving crises is complicated and can take many different paths. In some cases, the crisis is resolved in favor of the reigning theory, and no scientific revolution occurs. In other cases, there will be a revolution followed by a counter-revolution in which the older theory again prevails. These complications lead Lakatos to remark that "there are no such things as crucial experiments, at least not if these are meant to be experiments which can instantly overthrow a research programme." This admission is responsible for Lakatos' inability to provide a coherent account of scientific revolutions. Although he deserves commendation for his honest recognition of the difficulties involved in falsifying scientific theories, the denial that there are any crucial experiments in science amounts to the denial that theories are falsifiable at all. This is, of course, exactly the opposite of what Lakatos sets out to show.

Lakatos should have seen that in order for a theory to be falsified, there must come some time when a decision is made to regard it as such. This does not entail that the decision is final, but it does entail that when the decision is finally made to regard a given experiment as crucial, the experiment can at that time "instantly overthrow a research programme." Lakatos would have done better to recall his admiration for the daredevil attitude of the naive falsificationist. The choice between theories is indeed too complex to decide with any
finality, and in this regard, Lakatos' substitution of sophisticated falsification for the naive version is an improvement. But sophisticated falsificationism carries risks just as does naive, and these risks must be taken willingly on even the sophisticated model. Lakatos misstates his position when he ties the comeback potential of a seemingly defeated theory to a denial of crucial experiments.

In order to see how Lakatos' denial of crucial experiments is inconsistent with his falsificationism, consider again his claim that "exactly the most admired scientific theories simply fail to forbid any observable state of affairs." So long as this statement applies only to some stages in the development of a scientific theory, it is not objectionable and is simply a statement of Kuhnian normal science. But if stated as a general claim about scientific practice, it is plainly inconsistent not only with falsificationism, but with the entire history of science.

The real difference between sophisticated and naive falsification, Lakatos should have seen, has nothing to do with risks or crucial experiments. It is that the sophisticated falsificationist recognizes the importance of the timing of the various tests of a theory. Theories are confronted with problems not in the abstract, but at a time in their actual historical development, and when a theory is confronted with a problem is no less important for evaluating the theory than the fact that the theory faces the problem. A crucial experiment which finally overthrows a theory is the result of the development of a problem which had previously failed to overthrow the theory.

Kuhn is aware of Lakatos' failure to distinguish naive and sophisticated falsificationism, and claims that Lakatos has so qualified his SF that he cannot call it falsificationism without introduction of a time limit. Lakatos backs away from this objection and says that it is "beside the point."

One may rationally stick to a degenerating programme until it is overtaken by a rival and even after. What one must not do is deny its poor public record. Both Feyerabend and Kuhn conflate methodological appraisal of a programme with firm heuristic advice about what to do. It is perfectly rational to play a risky game; what is irrational is to deceive oneself about the risk.

This is no response at all. Lakatos falls back on publicity and tests, but these mean nothing if no results would be sufficient to refute the theory.

Lakatos is correct to insist that philosophy of science cannot provide firm heuristic advice about what to do in a given crisis. Different theories will follow different paths of historical development and will take different amounts of time to refute. The question of when
a theory is ripe for refutation is clearly a matter to be decided by science, rather than philosophy of science. This, however, does not relieve Lakatos of the responsibility of saying something about how the evaluation of a theory depends on its progress -- and finally, regress -- through time.

Lakatos' lack of awareness of the importance of the timing of a test of a theory results in his inability to provide a satisfactory distinction between naive and sophisticated falsificationism. The problem with naive falsificationism as an account of scientific change is that it does not distinguish between a test at \( t_1 \) and a future test at \( t_n \). It simply tells us that when a theory is confronted with a counter-instance as the result of an application (or, if you will, test) of the theory, the theorist must decide whether to invoke a ceteris paribus clause and save the theory from falsification or to regard the test as a legitimate falsifier of the theory. Now even with my version of the sophisticated account, a choice of this sort must be made. The sophisticated falsificationist, however, is more aware of the difficulty in falsifying scientific theories and of the consequent slowness of this process. She or he will therefore be more sensitive to how long the theory has been grappling with the problem and to whether all avenues of solution have been exhausted. Ultimately, however, the rules which the sophisticated falsificationist employs are no different than those of the naive falsificationist. They are, as Kuhn recognizes, those which Popper explains in *The Logic of Scientific Discovery*.78

Lakatos' attempts to distinguish the two versions of falsificationism are unsuccessful. He claims that one distinguishing characteristic is excess corroboration, or the anticipation of novel facts. He fails, however, to explain what is distinctive about this notion. It evidently says simply that theories with superior predictive power are superior, hardly a distinctive notion. He also claims that SF involves less reliance on a decision to relegate the ceteris paribus clause into the unproblematic background knowledge.

If a scientific theory, consisting of some 'laws of nature,' initial conditions, auxiliary theories (but without a ceteris paribus clause) conflicts with some factual propositions we do not have to decide which -- explicit or 'hidden' -- part to replace. We may try to replace any part and only when we have hit on an explanation of the anomaly with the help of some content-increasing change (or auxiliary hypothesis), and nature corroborates it, do we move on to eliminate the 'refuted' complex. Thus, sophisticated falsificationism is a slower but possibly safer process than naive falsificationism.

Although Lakatos here comes close to noticing the importance of the timing of tests of a theory, his denial of the need for a decision...
"about whether to relegate the ceteris paribus clause into the background knowledge" is puzzling. The latter decision is necessary in order to prevent an attempt to save the theory from a problem by blaming the result on experimental error. SF can avoid this decision no more than NF. It is indeed difficult to understand how Lakatos the falsificationist can suggest that:

If we have an inconsistency between a theory and an observation, we do not have to decide which ingredients of the theory we regard as problematic and which ones as unproblematic; we regard all ingredients as problematic in light of the conflicting accepted basic statement and try to replace all of them. If we succeed in replacing some ingredient in a progressive way (that is, the replacement has more corroborated empirical content than the original), we call it 'falsified'.

The problem is that any test which is in some sense "content-increasing" can be regarded as an advance, and thus all auxiliary hypotheses advanced in order to save a theory can claim to be progressive in that they allegedly resolve the anomaly in question. In allowing adjustments in the "protective belt" without pointing out that at some point these sort of corrections must be blocked by a bold decision to relegate the ceteris paribus clause into the unproblematic background knowledge and put the research programme itself to the test, Lakatos presents a recipe for indefinitely avoiding the decision to falsify the theory. This goes completely contrary to the spirit of his endeavor.

Lakatos' professed admiration for the naive falsificationist is, then, justified. The attitude of the sophisticated falsificationist must be to share in this willingness boldly to put the research programme to a potentially falsifying test, although s/he is more aware of the difficulties and somewhat more cautious about calling the test final. The sophisticated falsificationist realizes that the established theory has survived past challenges, and that crises have arisen previously with the established theory emerging victoriously. S/he also knows that the overthrown theory might stage a comeback (or counter-revolution) at some later date. Unlike the naive falsificationist who has no awareness of the importance of the timing of a test, the sophisticated falsificationist will not charge that past refusals to recognize the present anomaly as sufficient for falsification indicate irrationality on the part of previous scientists. Nevertheless, the present crisis demands anew the re-examination of the theory and the cessation of normal science.

The sophisticated falsificationist also recognizes that theories are evaluated not simply in comparison with facts, but in comparison with other theories. The decision to put a research program to the test involves the selection of a problem with observational consequences which serves as the basis of comparison between the two rival theories.
The outcome of the test then determines for the time being which theory wins out and whether the scientific revolution occurs or is foiled.

This account supplies an answer to a question which both Kuhn and Lakatos hoped to answer: What contribution can philosophy of science make to science itself? Kuhn denies that there is any such contribution and says that we can only look at past history and see what has occurred in scientific revolutions gone by. For present disputes, we must simply let the trained experts cast their votes and accept the results. Lakatos responds that we must reject purely historical studies and solutions and return to the logic of the sciences in order to obtain guidance on how to decide present scientific questions and on how to understand past scientific progress. He fails, however, to offer any such logic. My alternative answer is that philosophy of science can at least remind scientists (and all interested people) that a crisis requires a ruthless critical examination of the reigning theory in the field in question, and that the problem which provoked the crisis is to be regarded no longer as another puzzle of normal science, but as an experiment whose outcome is presently decisive for the theory in question.

I emphasize again that this is a methodological directive which states how scientists should behave in a crisis, but it is not a decision procedure. One cannot apply this directive and derive a unique solution to any problem in any of the sciences at any time. That is not the role of philosophy of science. The directive that one should cease to practice normal science is, however, an important one, for scientists will generally be extremely reluctant to give up normal science and consider the possibility that the reigning theory requires replacement. Indeed, a great many scientists, being thoroughly immersed in the reigning research program for their entire professional lives, will be among the last to recognize that the time for a test has come.

Lakatos' downfall is thus his failure to recognize that the occurrence of a crucial experiment is the criterion by which one appraises scientific theories. Recognition that a given application of a theory to a certain problem is a crucial test tells us that this application is far more than just another application of the theory in question. Although any crucial experiment might subsequently be overthrown during a counter-revolution in which the vanquished theory makes a comeback, the mere willingness of a scientific community to reject a research program -- even if only temporarily -- pending the outcome of a test is an enormously significant event in the history of that field.

Kuhn, with his over-emphasis on normal science, is equally to blame for neglecting the role of crucial tests in science. While he fails to focus on them in characterizing science, however, he does offer an insightful description of the development of scientific theories which will be helpful in Chapter Two. In particular, Kuhn's claim that scientific crises are highly visible as such enables us to pass over the difficult question of when a crisis is really a crisis and rely instead upon the fact that the attention of the practitioners of a field has
become increasingly focused on a particular problem.

The importance of scientific crises is, of course, implicit in Kuhn. Nevertheless, for our purposes it is important to de-emphasize Kuhn's thesis that normal science with its uncritical attitude is the essence of science and to emphasize the importance of criticism during a crisis. One could thus state my aim as turning the reader from Kuhn's discussion of normal science to his account of crisis, an account which actually differs little from that of Lakatos. The main difference is, in fact, that Lakatos over-emphasizes the difficulty of revolutions to the point of missing the importance of the crucial experiments which are essential to falsification.

This is particularly important for Marxism today. The established capitalist research program has prevailed for so long that there is a tendency to regard it as natural. This tendency is reinforced by practitioners of the theory who generally explicitly claim that theirs is the only theory of scientific economics. This view goes back as far as Adam Smith's mention of "a certain propensity in human nature... to truck, barter, and exchange one thing for another," but it has become even stronger with the advent of neo-classical theory at the end of the nineteenth century. Furthermore, the dominance of the capitalist theory has been accepted even by many professed Marxists, who object to capitalism on moral grounds but doubt whether the capitalist system can be overthrown (and thus likewise doubt whether the capitalist research program can succumb to its Marxist rival). There is a widespread tendency to conclude from the past resilience of the capitalist research program in the face of crises gone by that it can withstand virtually any crisis, or even to conclude that it is capable of preventing crises. Such conclusions run contrary to the letter and spirit of Marxism, and Marxists today must confront them head on. A first step in such a confrontation is to recognize that even the most powerful of past scientific research programs, including Newtonian Mechanics, have eventually fallen in the face of crucial tests.

In the next chapter, I argue that the capitalist research program, and in particular the economic theory which lies at the heart of that research program, today faces a crucial experiment which makes it important to consider whether that theory merits continued acceptance or rejection and replacement by Marxist theory. Before turning to this question, however, I discuss Kuhn's and Lakatos' criticisms of Marxism as a scientific theory and refute their claim that it is not scientific. Although neither discusses the question at length, their failures are instructive for clarifying my contention that it is a bona fide scientific theory.

Kuhn's and Lakatos' Criticisms of Marxism

Kuhn's only comment on Marxism occurs in his paper, "Logic of Discovery or Psychology of Research," where he responds to Popper that
in "examining the vexing cases, for example, psychoanalysis or Marxist historiography, for which Sir Karl tells us his criterion was initially designed, I concur that they cannot properly be labeled 'science'."\textsuperscript{85} Kuhn, however, discusses neither of these cases explicitly, opting instead for a discussion of why astrology is not a science "in order to avoid irrelevant contemporary controversies."\textsuperscript{86}

In his attempt to avoid contemporary controversies, Kuhn begs the question against Marxism. Kuhn's argument clearly can show at most that if there is a parallel between Marxism and astrology, then Marxism can be eliminated on the same grounds as astrology. In fact, there is no such parallel and Kuhn has no reasons for excluding Marxism as a scientific theory.

Before proceeding to distinguish Marxism from astrology, however, it is worth noting some problems with Kuhn's argument against astrology. He first correctly indicates some problems with Popper's account of why astrology is not a science. Popper argues that astrology and other pseudo-sciences introduce auxiliary hypotheses which in effect deny the predictive failures of the theory. Kuhn, however, points out that "not even astrology's most convinced and vehement exponents doubted the recurrence of such failures. Astrology cannot be barred from the sciences because of the form in which its predictions were cast."\textsuperscript{87} Furthermore, when confronted with predictive failures, astrologers responded similarly to scientists and attributed the failures to lack of skill and to insufficient data.

Astrologers pointed out, for example, that, unlike general predictions about, say, an individual's propensities or a natural calamity, the forecast of an individual's future was an immensely complex task, demanding the utmost skill, and extremely sensitive to minor errors in relevant data. The configuration of the stars and eight planets was constantly changing; the astronomical tables used to compute the configuration at an individual's birth were notoriously imperfect; few men knew the instant of their birth with the requisite precision. No wonder, then, that forecasts often failed.... There was nothing unscientific about the astrologer's explanation of failure.\textsuperscript{88}

Kuhn then offers a different reason for denying astrology the status of a science: it did not give rise to a puzzle solving tradition. "And without puzzles, able first to challenge and then to attest the ingenuity of the individual practitioner, astrology could not have become a science even if the stars had, in fact, controlled human destiny."\textsuperscript{89}

This demarcation criterion is no more successful than Popper's. Kuhn's account of the reasons for astrologers' failures -- "There were
too many sources of difficulty, most of them beyond the astrologer's knowledge, control, or responsibility."^90 -- applies equally to many difficult problems in the sciences. And after claiming that "individual failures were correspondingly uninformative, and they did not reflect on the competence of the prognosticator in the eyes of his professional compeers,"^91 Kuhn admits in a footnote that astrologers did criticize one another's predictions. He unfortunately neglects to explain this admission. Although he says that the criticism focused not on the competence of the individual, but on "the implausibility of the particular theory employed by one or another school,"^92 criticism of the theory employed by a theorist is also a criticism of the theorist. Such a criticism is an attack upon a particular solution to a problem, and pertains both to the theorist and to the theory. This is common in the sciences as well as in astrology.

We should expect, in fact, that astrology could attract thinkers of the stature of Brahe and Kepler just because it presented puzzles which challenged the intellect. Kuhn's discussion shows, if anything, that astrology explains phenomena in a manner not very different from science, and this plausibly accounts for earlier scientists' acceptance of astrology. Kuhn does not, however, show why we should today refuse to recognize astrology as a science.

In order to find the correct explanation for denying that astrology is a science, we must examine not whether astrologers attempted to solve puzzles, but how successful their solutions were. If Kuhn can today say that "particular failures did not give rise to research puzzles, for no man, however skilled, could make use of them in a constructive attempt to revise the astrological research tradition"^93 (emphasis added), this is because the astrological tradition has repeatedly failed to solve its puzzles. Astrology has failed, over a very long period of time, to demonstrate predictive power and this alone justifies our denial that it is a science. And even today, we must admit that astrology would qualify as a science if it suddenly began to demonstrate predictive success.

Kuhn's mistake in this regard is important for our argument concerning Marxism because of the differences between Marxism and astrology. Marxism, to begin with, can claim considerable predictive success regardless of what one might say about its problems. Marx predicted that capitalism would continuously undergo economic crises where millions of workers become unemployed, as well as that wealth would become concentrated in the hands of a handful of capitalists and huge corporations. These predictions are enormously important and relevant to modern society, and are sufficient to counter-balance considerable predictive failure. One thus cannot draw a connection between Marxism and astrology based on the predictive records of the two theories. A second significant difference between Marxism and astrology is the amount of time which each has had to demonstrate its ability. Marxism is just over a century old and remains the principal challenger to capitalist social theory; it is, in other words, a relatively young theory which
deserves a chance to prove itself, as we shall see more clearly in our discussion of Lakatos. Astrology, on the other hand, has a history of over twenty centuries and hardly deserves more time in which to prove itself. Furthermore, one should expect that with astronomy developed as it is today, with greatly improved ability to predict stars' and planets' positions, that astrology would by now have shown greater success. There are no grounds whatever for claiming that Marxism is unscientific for the same reasons as one dismisses astrology, and Kuhn has no basis for denying that Marxism is a scientific theory.

Lakatos is, more than Kuhn, an opponent of Marxism. He is similar to Kuhn, however, in offering no substantial support of his criticism of Marxism. He parenthetically asks, "What novel fact has Marxism predicted since, say, 1917?" I have already answered this question and noted the recurring crises of capitalism (including the Great Depression of the 1930's), and the increasing concentration of wealth. The theory does not generate specific predictions of events, such as times or locations; it does not tell one when a depression will occur, for example. But no social theory generates predictions of this sort. The success of the natural sciences in these kinds of predictions is due, rather, to their ability to engage in controlled experiments, an ability not possessed by most of the social sciences. I shall evaluate Marxism's theoretical success in more detail in the next chapter; for now, it is sufficient to note the ignorance of Lakatos' objection to it.

Lakatos, however, encounters another problem in using this theory of science as a basis for criticizing Marxism on methodological grounds. Not only does Lakatos recognize that stubbornness is often acceptable before giving up a research program, but he recommends special leniency in dealing with new, non-established challengers to entrenched research programs.

... we must not discard a budding research programme simply because it has so far failed to overtake a powerful rival. We should not abandon it, supposing its rival were not there, it would constitute a progressive problemshift. And we should certainly regard a newly interpreted fact as a new fact, ignoring the insolent priority claims of amateur fact collectors. As long as a budding research programme can be rationally reconstructed as a progressive problemshift, it would be sheltered for a while from a powerful established rival.95

Indeed, Lakatos calls for the proliferation of challengers to established theories as necessary to ensure that scientific knowledge advances, and in distinguishing his philosophy of science from Popper's, says even that "all important theories are born refuted."96

The history of science likewise testifies to the demand for leniency with Marxism. Scientific revolutions often take centuries to
develop. The Copernican revolution, for example, initiated a scientific revolution which concluded only with the establishment of Newtonian physics as the unquestioned basis of physical theory. Copernicus' *De Revolutionibus Orbium Coelestium* first appeared in 1543; Newton's *Principia* in 1687. The establishment of Newton's theory thus took 144 years. It then reigned until the twentieth century. Marx's *Capital* was published in 1867, 115 years ago. There is no historical justification for claiming that adherence to Marxist theory is irrational at the end of the twentieth century.

Lakatos' attempted rejection of Marxism as a scientific theory is thus inconsistent with his own philosophy of science. Lakatos -- who demands proliferation of theories, sympathetic treatment of budding rivals to established theories, and ruthless criticism of established theories -- so opposes Marxism that he would eliminate the only existing legitimate challenger to capitalist social theory as unscientific and thereby leave only one research program in the social sciences. This testifies only to the extent of Lakatos' dislike for Marxism, not to the unscientific character of Marxist theory.

I thus conclude that Marxism must be treated as a legitimate scientific theory. The evaluation of the theory depends not upon the method employed, but upon how well it explains social phenomena and solves the major problems which capitalist theory has failed to solve. In the next chapter, I turn to some of the problems which the Marxist and capitalist economic theories attempt to resolve and examine a crucial experiment which can help decide between the two.
CHAPTER ONE FOOTNOTES


2. Laski, op. cit., p. 47.

3. Ibid., pp. 57-8.


7. Ibid., 43-4.


12. Ibid.


14. Ibid., emphasis added.


17. Ibid., p. 91.
18. Ibid.

19. Ibid., p. 89.


22. Ibid., pp. 186-7.


24. Ibid., p. 183.


26. Kuhn's influence within the social, as well as the natural, sciences is widespread. Samuelson, for example, in the most widely studied economics textbook in America, already refers to Kuhn's theory as the most nearly correct account of philosophy of science, in the ninth edition of his Economics (1973).


28. Ibid., p. 64.


32. For Lakatos' characterization of naive falsificationism, cf., ibid., pp. 104-22. Lakatos denies that Popper's philosophy of science represents naive falsificationism, although he admits that most of Popper's writings express this position (cf., ibid., pp. 190-1). Kuhn, on the other hand, maintains that Popper is a naive falsificationist, and says that "though he is not a naive falsificationist, Sir Karl may, I suggest, legitimately be treated as one." (Ibid., p. 14).


35. Cf., pp. 4-13 above, passim.

36. Cf., Laski, op. cit., p. 112 (Brackets in original.)


38. Ibid.

39. Ibid.

40. Ibid., p. 82.

41. Ibid.

42. Ibid.

43. Ibid., p. 84.

44. Ibid., p. 90.

45. The title of Section X of The Structure of Scientific Revolutions is "Revolutions as Changes of World View."

46. Cf., p. 36 above.

47. Lakatos, op. cit., pp. 100-1.


49. Ibid., pp. 97-100 for Lakatos' critique of dogmatic falsificationism.

50. Lakatos says, "According to the 'justificationists' scientific knowledge consisted of proven propositions." Ibid., p. 94; emphasis in original.

51. Ibid., p. 103. Lakatos argues, "If factual propositions are unprovable then they are fallible. If they are fallible then clashes between theories and factual propositions are not 'falsifications' but merely inconsistencies."

52. Ibid., p. 106.

53. "Our... 'methodological falsificationist' makes unfalsifiable by fiat some (spatio-temporally) singular statements which are distinguishable by the fact that there exists at the time a 'relevant technique' such that 'anyone who has learned it' will be able to decide that the statement is 'acceptable'. Such a statement may be called an 'observational' or 'basic' statement, but only in inverted commas." (Ibid.) Lakatos here refers the reader to Popper's Logic of Scientific Discovery, Section 27, for confirmation that this is Popper's position.
54. Ibid., p. 109.

55. Cf., p. 50 above.

56. Lakatos, op. cit., p. 111.

57. Ibid., pp. 112-3.

58. Ibid., p. 114.

59. Ibid., p. 115.

60. Cf., ibid., p. 181 for Lakatos’ discussion of the different versions of Popper’s falsificationism.

61. Popper, Conjectures and Refutations, p. 38, fn.3; quoted in ibid.


63. Ibid.

64. Ibid., p. 174.

65. Ibid., pp. 176-7.


67. See, for example, Lakatos’ discussion of positive and negative heuristic in Lakatos, op. cit., pp. 132-8.


69. Kuhn, Structure of Scientific Revolutions, p. 5.

70. Cf., pp. 45-6 above.

71. Cf., p. 47 above.

72. Kuhn, op. cit., pp. 82-3.

73. I discuss an important example of this in the next chapter. See the section on the labor theory of value and Sraffa’s revival of it.

74. Cf., pp. 55-6 above.

75. Cf., pp. 53-4 above, fn. 57.


78. In "Logic of Discovery or Psychology of Research?" (Lakatos and Musgrave, op. cit., pp. 1-23), Kuhn says that "Sir Karl has characterized the entire scientific enterprise in terms that apply only to its occasional revolutionary parts." (p. 6) In other words, Kuhn's criticisms of Popper are based not upon the latter's description of scientific revolutions, but upon his emphasis on such revolutions as constitutive of science. The remainder of this essay confirms that Kuhn's criticism of Popper follows these lines.

79. Lakatos in Lakatos and Musgrave, op. cit., p. 125. Lakatos speaks of this as the elimination of the fourth type decision of the naive falsificationist.

80. Ibid.

81. Cf., Lakatos quote, pp. 53-4, above.

82. Lakatos, op. cit., p. 130.

83. This famous quote appears at the beginning of Chapter Two of Adam Smith's The Wealth of Nations.

84. Kuhn, op. cit.

85. Ibid., p. 7.

86. Ibid.

87. Ibid., p. 8.

88. Ibid.

89. Ibid., pp. 9-10.

90. Ibid., p. 9.

91. Ibid.

92. Ibid., fn. 2.

93. Ibid.

94. Also, in this connection, Kuhn remarks, "paradigms gain their status because they are more successful than their competitors in solving a few problems that the group of practitioners has come to recognize as acute. To be more successful is not, however, to be either completely successful with a single problem or notably successful
with any large number. The success of a paradigm... is at the start largely a promise of success discoverable in selected and still incomplete examples. Normal science consists in the actualization of that promise... by increasing the extent of the match between those facts and the paradigm's predictions and by further articulation of the paradigm itself. (The Structure of Scientific Revolutions, pp. 23-4.)


II. THE FIRST CRISIS OF ECONOMIC THEORY:

THE THEORY OF VALUE

I have so far argued that Marxism is a scientific theory and that it has not been refuted by historical evidence. The remaining arguments will now show that Marxism is the best theory for understanding the nature and the future of capitalist society today.

It is important always to remember Marx's aim as a social scientist. He was not interested in social theory for its own sake, but concentrated always upon the problems of capitalist society and the solution of those problems through a revolution led by the working class. He determined at a relatively early age that those problems are rooted in the nature of capitalist society; the social form of wage labor alienated workers from their work and reduced them to little more than interchangeable parts of the industrial machine. It deprived the workers of creativity through its reduction of industrial work to "abstract labor." Marx concluded that such a system could not be reformed, that it required a revolution to eliminate the problems.

How could such a revolution come about? The attempt to answer this question brought Marx directly to the theory of political economy which had recently been developed as a scientific theory by the English economist David Ricardo. Marx turned to political economy not because it is logically prior to other branches of the social sciences, or because it was more highly developed than other social theories; his interest is rather due to his view that it alone reveals the laws of motion of capitalist society. Therefore, it alone can explain how a revolutionary overthrow of capitalism can occur. Marx believed that an understanding of capitalist political economy reveals fundamental instabilities (contradictions) within the system which make its continued existence impossible. The grounds for believing that socialism will replace capitalism thus are not moral, but can be found within the capitalist economy itself; the system will fall not simply because it is morally reprehensible, but because it will destroy itself.

Marx made this prediction over a century ago, yet capitalism persists in the industrialized Western world. Popper and other defenders of capitalism have thus maintained that the failure of the prediction after this much time refutes the theory, and although I have already shown that this argument fails, I have also conceded its importance. The resilience of capitalism has led even many Marxists to doubt the relevance of Marx's theory of revolution and to treat his analysis
simply as a demonstration of the evils of capitalist society. Others concede that capitalism will eventually fall, but expect this to happen in some distant generation. These interpretations are not genuinely Marxist, however insistently they invoke Marx's ideas or are based upon a detailed study of his writing. Although they may borrow significant portions of Marx's theory, the rejection of the theory of revolution -- either by substituting a utopian model of socialism-by-reform or by postdating the revolution for some future generation -- is a rejection of Marxism.

Many would object that the preceding interpretations are supported by the historical experience of over a century, and that past generations of Marxist theorists and organizers who have foretold a revolution have been sadly disappointed. In light of this, they suggest that the prediction of a revolution must be withheld and replaced by a more realistic assessment of the proven power and resilience of late capitalism.

These arguments are today very weak, and a primary objective of this essay is to put them to rest. I concede that any current outlook for a socialist revolution must be based upon a realistic assessment of the present situation and upon the ability of capitalist theory to cope with that situation. I likewise concur that a realistic assessment must account for the previous ability of capitalism to resolve its crises. I deny, however, that this means that members of the present generation will not see socialism, and I will argue instead that based upon the theory and practice of political economy since the time of Marx, there is every reason to expect a breakdown of the capitalist economic system with revolutionary consequences. Whether those consequences are a humane socialist society with a high standard of living, industrial and political democracy, and peace depends only on whether enough people become aware of the truth of the previous sentence soon enough.

Lakatos remarked that "all theories are born refuted," and criticized induction as a method foreign to science. The modern reservations about the prospects for socialism provide an excellent example of this. There is indeed powerful inductive evidence for the survival of capitalism. For many generations now, its continued existence has been as much a given as the daily rising and setting of the sun, and a belief in the uniformity of nature clearly does support the non-revolutionary interpretation of Marx. The uniformity of nature, however, always favors established theories, and the latter interpretation of Marx is weak precisely because it is so reliant upon the uniformity of nature.

Over-reliance on the uniformity of nature principle makes one short-sighted. One can easily forget that feudalism, the dominant form of social life for almost ten centuries, eventually fell. Humans have throughout the ages lived under many different forms of society, and none yet has proved to be eternal. If we adopt the viewpoint of modern economics rather than the historical perspective of Marx, it becomes easy
Nothing could today be farther from the truth. An examination of the history of capitalist economic theory since Marx reveals two important crises within the capitalist paradigm, one in the theory of value and the other in the theory of employment. In each case, the outcome has so far been the development of a new theory within the capitalist research program which allegedly resolved the crisis. In fact, however, the crises in both the theory of value and the theory of employment persist today, and neither "revolution" within capitalist theory has solved the problems which it addressed. Furthermore, one of these crises of late capitalism -- to wit, the theory of employment -- promises to culminate in a revolutionary situation the likes of which has yet to be seen in the history of capitalism. This will be the final crucial test of the theory, the test which capitalism will be unable to survive.

The thesis of this essay is clearly empirical and falsifiable. If, a century from now, capitalism continues to exist in America, then one would be quite correct to claim that my argument will have been refuted. This, I emphasize, would not refute Marxism. In order to accomplish the latter, one or both of the following would have to occur: capitalism would have to have solved its major problems and produced a society where all people are productively employed and comfortable, or a new, superior rival to the capitalist theory would have to have developed. As Lakatos has shown, all scientific progress requires the proliferation of rivals to a research program, and the defeat of such rivals results not from their own collapse, but from the continued success of the established theory. This is all that is required in order for the latter to continue to guide research, which is, after all, the relevant question; the obliteration of rivals such as Popper attempted with Marxism is both unnecessary and undesirable.

The Historical Development of the Labor Theory of Value

Capitalism grew out of the revolt against feudalism. The revolt was due to an enormous increase in trade which took many years to develop into a form which could challenge the established order of society, and even longer to reach the point where it could win that challenge. The capitalist revolution, as has often been emphasized, was a sweeping change which involved all of the institutions of society, but there is little doubt that the major force was the developing economic system which emphasized the division of labor and trade over the self-sufficient agricultural system of feudalism.

Just as the capitalist revolution took considerable time in developing, so too did the theoretical revolution which accompanied it. In England, the theoretical roots date back at least to Hobbes, whose notion of liberty and conception of a society based upon a contract between people rather than upon a divine right presents some important
liberal, capitalist concepts in an early form. For present purposes, however, John Locke is the more important early figure. Locke's labor theory of property appeared in 1690, and stated that the right to all property derives from its embodiment of labor. The theory never made much sense as an account of actual property relations, especially since Locke included a principle limiting the amount of property to which one is entitled. It is, however, important because of its suggestiveness for an economic theory which had yet to develop.

Locke argued that people have a right to life and thus to the means of their existence, and he recognized that people exist and procure their means of existence by their labor. He thereby laid the foundation for the view that the source of all wealth is labor, and this was an important concept during the mercantile era when wealth was still understood as inherent in trade in gold and spices rather than in industry. The actual development of industry in England and Locke's labor theory were doubtless the empirical and theoretical bases for Adam Smith's theory.

Locke's Two Treatises of Government, which contains his discussion of the labor theory, is not about political economy. His labor theory is a theory of property, not of value, and the Two Treatises provide virtually no account of trade. The latter task fell to Adam Smith, who is widely recognized as the founder of political economy. The advance from Locke to Smith is perhaps best illustrated by the different titles of their books. Whereas Locke's primary concern with government shows through clearly in his title, Smith gives us An Inquiry Concerning the Nature and Causes of the Wealth of Nations.

Adam Smith addressed two important and related concerns: what causes the wealth of a nation, and in light of this, how can a nation best increase its wealth? To the first question, Smith answers "labor". And as a solution to the second he recommends a system of free enterprise which allows people to pursue their interests as they see fit. Such a system will, he argued, maximize society's wealth and benefit all. An exhaustive treatment of Smith's political economy is beyond the scope of this essay, but it will be worthwhile to examine briefly the causal role of the labor theory of value in Smith's system of free enterprise.

Smith's principal rival was the then-reigning mercantile theory which identified a nation's wealth with the size of its gold reserves and which saw the increase of a country's supply of gold as the best way to build up its wealth. In order to achieve this end, the mercantilists recommended the regulation of trade (and in particular, foreign trade) so as to bring about an increase in gold. It was this system of regulation of economic affairs that Smith opposed, but in order to make good on his criticism of it he first had to show that the wealth of a nation is found not in its gold supply but in its system of production. The arguments on behalf of the free enterprise economy are less important for our purposes than the fact of its triumph and the ensuing success of the English economy relative to the other Western nations.
It was this success in amassing wealth that corroborated the Smithian theory and established it as the basis of a scientific tradition which has prevailed for over two centuries.

But although Smith's theory is important — and was even more so at the time of its publication, it turns out to be something less than science and leaves unanswered a number of important questions. Among the weaknesses of the theory is its unsystematic treatment of the labor theory of value and its application to relative price ratios. Smith argues that labor is the cause of wealth and the basis of the theory of value and price, but his application of it to prices does not consistently employ the labor standard and reverts instead to an adding-up of the various factors of production. Smith, as Ricardo was to point out, confuses the quantity of labor with the price of labor (i.e., wages) and is thus led to refer to the actual prices of commodities as the amount of wages plus profit.

Smith offered no integrated theory of value, and relied mainly upon suggestive examples to spell out his theory. A systematic treatment of political economy appears only with Ricardo's *Principles of Political Economy* and *Taxation*. In comparing the two works, Maurice Dobb explains:

...until 1817, the year of Ricardo's *Principles*, there was nothing that could be called a single theoretical system of political economy, even as a preliminary sketch. A characteristic of the *Wealth of Nations* was its unsystematic character so far as theory was concerned. Some have even regarded this perhaps as among its leading virtues: that it was able to illuminate so much because it was concerned so largely with history and with particular situations and did not strain after conceptual unity. Brilliant *aperçus*, elegantly fashioned *pieces* of theory, most persuasive commentary and judgement upon particular policies and systems of thought like the 'mercantile' and the 'agricultural' it certainly contained. But we have seen that it lacked a theory of distribution properly speaking, and that what there was of a theory of price or of value (in the form of the adding of the three components) was logically incomplete.... With Ricardo, however, we meet something rather different: an integrated theory of value, of profit and of rents; its aspects *elements* having something of the neatness and precision of a mathematical demonstration, to which a major policy corollary was most persuasively attached.

We should note that the two shortcomings which Dobbs notes — the lack of a theory of distribution and of a theory of price — are closely related. The division of the product between classes was not a major
concern of Adam Smith; his dispute is with the mistaken policies of mercantilism rather than with the struggle between social classes. By the time of Ricardo, however, the success of Smith's theory had largely defeated the mercantilists and the central question had become the struggle between the capitalist class and the landlord class, and neither side argued for its position in terms of mercantilist theory.14 Ricardo's concern with the problem of distribution between classes shows through clearly in the opening paragraphs of his Principles.

The produce of the earth — all that is derived from its surface by the united application of labour, machinery, and capital, is divided among three classes of the community; namely, the proprietor of the land, the owner of the stock or capital necessary for its cultivation, and the labourers by whose industry it is cultivated.

But in different stages of society, the proportions of the whole produce of the earth which will be allocated to each of these classes, under the names of rent, profit, and wages, will be essentially different; depending mainly on the actual fertility of the soil, on the accumulation of capital and population, and on the skill, ingenuity, and instruments employed in agriculture.

To determine the laws which regulate this distribution, is the principal problem in Political Economy.15

Whereas Smith had argued against restrictions on the flow of gold in and out of the country, Ricardo was concerned with a different set of regulations: the Corn Laws. These laws imposed a tariff on cheap imported corn and kept the price of food high. The result was that capitalists had to pay higher wages to workers which in turn went to the landlords for food. This lowered profits in industry and transferred wealth from the capitalists to the landlords, and Ricardo argued that this resulted in lower production and was damaging to the English economy.

Ricardo's concern with practical questions is evident from the sequence of his works. Before writing the Principles of Political Economy and Taxation, he published an influential pamphlet which established him as an important economic theorist. The substance of this work is summarized in the title: An Essay on the Influence of a Low Price of Corn on the Profits of Stock, showing the inexpediency of restrictions on importation. Following the publication of this pamphlet, and on the insistence of his friends (including most importantly, James Mill), Ricardo came to see the importance of a more systematic treatment of the subject matter and sets out to write the Principles. Here again, practical considerations are crucial; the landlords do not lack important and influential theorists (e.g., Thomas Malthus), and a conclusive theoretical argument is required in order finally to set matters
Ricardo argues for free trade and consequently lower food prices using the labor theory of value. Productively employed labor is the source of wealth, and it is the capitalists who employ labor and make possible the production of that wealth. The Corn Laws thus transfer wealth of the society. This is an injury to the nation as a whole, and Ricardo clearly held that in this regard the interests of the landlords are in opposition to the interests of society as a whole. He was thus very much a theorist who was conscious of his position in a class struggle.

We have seen that Ricardo's class struggle concerned the capitalists and the landlords, and should note that in this struggle the workers played a passive role. This was not an error on Ricardo's part, but was rather a result of his historical situation. Ricardo saw no evidence that labor was capable of of improving its situation. The working class movement of the French Revolution had been ruthlessly suppressed with the fall of Babeuf's Conspiracy of the Equals. Furthermore, Ricardo's supply and demand theory of the price of labor, together with Malthus' population theory, ensured that wages would tend toward subsistence. Indeed, Ricardo identified the interests of the workers with those of the capitalists. Even though wages tended toward subsistence, Ricardo recognized (as did Marx) that "it is not to be understood that the natural price of labour, estimated even in food and necessaries, is absolutely fixed and constant. It varies at different times in the same country, and very materially in different countries." And like Adam Smith, Ricardo believed that "it is in the progressive state when the society is advancing... rather than when it has acquired its full complement of riches, that the condition of the labouring poor... seems to be the happiest and most comfortable. It is hard in the stationery and miserable in the declining state."

Ricardo's theory was spectacularly successful and clinched the historical and theoretical victory of capitalism over feudalism. With this victory, the labor theory of value was established as the basis of political economy. The theory explained the cause of wealth, how best to increase it, how to allocate the labor force between industries (i.e., the division of labor), and prices. Due to Ricardo's use of the theory and the widespread acceptance of the Ricardian theory, economic theorists continued to use it for the better part of the nineteenth century and even when departing from it substantially -- as did John Stuart Mill -- continued to pay it lip service. In the last third of the nineteenth century, however, the labor theory came under intensive attack and by the end of the century had been replaced by a new theory of value which brought with it an entirely new picture of the economic process. The new theory replaced the labor theory of value's conception of economic value as derived from the process of production with an account which identified value with the satisfaction of consumers' preferences. This new "neo-classical" theory was hailed by its proponents as more scientific than the older "classical" theory and
condemned by its opponents as either apologetics or tautological and uninformative. We must now attempt to understand how this revolution in economics came about and to evaluate its success as a scientific theory.

The Rise of Neo-Classical Economics

Any attempt to make sense of the rise of neo-classical theory — "the marginal revolution," as it has been called — immediately confronts a number of difficulties. The theory was developed concurrently by Jevons in England, Menger in Austria, and Walras in France. None of these authors were aware of the work of the others and each theory is thus unique in many respects, making it somewhat strained to speak unequivocally about the marginal revolution. Furthermore, the reception of the theory by both defenders and critics of the capitalist order has varied; some Marxists defend and employ the new theory while others attack it, and especially of late, capitalist critics of the theory have begun to emerge. This makes it difficult to speak of the theory as either pro-capitalist or anti-Marxist. Finally, each theory is, as we shall see, better suited than the other for purposes of addressing some of the questions of political economy, and hence, which theory one regards as "superior" is likely to depend on the questions in which one is interested.

The theory we are now considering is the standard economic theory taught in contemporary economics courses. It describes economics as "the study of how men and society end up choosing... to employ scarce productive resources that could have alternative uses, to produce various commodities and distribute them for consumption, now or in the future, among various people and groups in society." In this definition from Paul Samuelson's introductory textbook, the author has conveniently underlined the two key concepts: choice and scarcity. Whereas the classics took the economic problem to be that of increasing the wealth of society, the neo-classics saw the wealth of society as limited by the scarcity of resources. The difference is in part only one of emphasis; surely the neo-classics were not the first to notice limitations on production relative to human wants. Nevertheless, the different emphasis is crucial. Although the classical economists realized it is impossible to satisfy all human wants and indeed based their argument for growth on ever-expanding wants and needs, they began their study not from the limitations on satisfactions but on the ability of the economic system to expand production and consequently satisfaction.

This new perspective naturally shifted the foundations of economics from the realm of production to the realm of consumption. So long as economics took as its primary problem the increase of wealth, it had to begin with the way in which that wealth was produced. At this point, a labor theory of value will naturally suggest itself, whether in the extreme view that labor is the only source of wealth (i.e., that the costs of all factors of production are reducible to labor costs) as in the Ricardo-Marx view, or in the limited sense that labor is the
principal source of wealth (i.e., that most costs are reducible to labor costs) as in the Smith-Mill-Marshall view. But when the economic problem became one of choosing among scarce alternatives, the psychology of the consumer pushed itself into the forefront of economic analysis, and this entails a theory very much like the Jevons-Menger-Walras approach.

Why, then, should the latter sort of theory have gained acceptance at the end of the nineteenth century? In so far as it is based upon an empirical claim about the limitations of production, it is clearly on weak footing. The theory was proposed in the 1870's and had gained acceptance by the 1890's, but production has since increased far more than even during the "industrial revolution" of the nineteenth century. Although today we continue to hear the same messages about running out of resources (e.g., the "small is beautiful" movement), as can be found in Jevons' fears about the depletion of the coal reserves in England, at no time in the past two centuries has the increase of production been stalled due to limitations on resources. It is ironic indeed that Jevons should have voiced his fears about the depletion of the coal reserves just as oil was being developed as an energy source in America. Thus, even if one admits that there are serious resource shortages in the 1980's, one would have to wonder about the victory of the neo-classical theory a century ago.24

Blaug has suggested four explanations as candidates: "(1) an autonomous intellectual development within the discipline of economics; (2) the product of philosophical currents; (3) the product of definite institutional changes in the economy; and (4) a counterblast to socialism, particularly to Marxism." Blaug favors the first of these, nothing that it "is the most plausible single explanation, and it is indeed the most widely held of the four."25 He then goes on to list such factors as "the bankruptcy and disintegration of classical economics in the 1850's and 1860's... the virtual abandonment of the labor theory of value in Mill's Principles," and a number of other intellectual developments leading up to the rejection of the classical model.26 This explanation is, however, uninformative as to the reasons for the development of the neo-classical theory; Blaug tells us only that the neo-classical theory arose as the classical theory fell into disfavor during the second half of the nineteenth century; he gives us no account of why this occurred.

The criticism gains force from my earlier mention of the weak empirical footing of the neo-classical theory faced a number of more or less serious problems, but all theories confront problems at all times in their development and the question one must address is not whether a theory faces problems or how many problems it faces, but how severe the problems are. Prima facie, there is no apparent reason for the rejection of the classical theory of economic development and the substitution of a theory of the stationery state. In this regard, Blaug's account of the rise and eventual triumph of neo-classical economics as an autonomous intellectual development is unsatisfactory.
Blaug's second candidate -- which views the new economics as a product of philosophical currents -- is likewise deficient, as Blaug recognizes. The main influence one would expect to find here is that of utilitarianism, and doubtless the new theory could be interpreted as a form of applied utilitarianism. But we are nonetheless left wondering why the latter should be interpreted as a cause of the new economics rather than a convenient tool to be applied once the need for a new theory was recognized. It is worth remembering, in this vein, that James Mill was among Ricardo's closest friends and that Ricardo was likely in agreement with utilitarian ethics, although he denied its relevance to the theory of value in economics. Utilitarianism was perhaps necessary to the neo-classical theory, but was clearly not sufficient to account for its emergence.

Blaug's two remaining candidates deserve more attention. Blaug associates both with Marxism and accepts neither. They are, however, the two explanations of the phenomenon that make the most sense of it. Blaug denies that the neo-classical theory was proposed as "a counter-blast to socialism," but there is no doubt that this was at least part of the reason for both the development and the success of the neo-classical theory. This is explicit in Jevons, who speaks of the spread of "erroneous and practically mischievous" ideas about political economy among the working class. Furthermore, Blaug equates socialism with Marxism, an obvious error. He is quite correct that none of the neo-classical developers were aware of Marx's work, but socialist thought existed well before Marx. Entirely apart from any familiarity with socialist works, any nineteenth century writer who was remotely aware of contemporary events had to know about such events as the Paris Commune and other radical working class movements, as well as the exercise of political and economic power by the working class in the form of trade unions. One cannot eliminate these events from an historical account of the rise of neo-classical economics without doing violence to history, however attractive it might be to Blaug et al. to do so.

Blaug's neglect of these factors in his account is particularly puzzling since they do not in themselves point to a criticism of the neo-classical school. One of the functions of any economic theory is to justify certain economic institutions, and to admit this is not to impugn the scientific nature of the theory. Indeed, the greatest economic theorists -- including Adam Smith, Ricardo, Jevons, and Marshall -- have always recognized this function, and there is no point in denying that among the objectives of the early neo-classical theorists was de-fusing the explosive labor theory of value. I shall myself argue that the attempt to reduce neo-classical economics to nothing more than an apology for capitalism is a mistake, but the view that there was no such apologetic intent whatever is equally mistaken.

The attempt to avoid the ideological elements in the rise of neo-classical economics has led to some far-fetched arguments by capitalist theorists. Blaug argues that "it would be difficult to think of an
argument more agreeable to business interests than the classical wages fund doctrine. The nomenclature of utility and disutility, on the other hand, leads one immediately to ask whether a free enterprise system represents such a use of resources in satisfying wants as to insure society the greatest surplus of utility over disutility. 29 But while the wages fund doctrine is surely agreeable to business interests, the classical doctrine of subsistence wages and the wages fund is hardly the kind of justification one would expect to appeal to workers or to succeed in mollifying their demands for higher wages. On the contrary, it is precisely the sort of doctrine one would expect to radicalize them. And although Blaug is correct to point to the problems which utility theory raises as a justification of capitalism (particularly when the principle of diminishing marginal utility is included), this is not the part of the neo-classical theory which has been used to justify wage rates. The latter relies on the marginal productivity theory which maintains that all factors of production -- viz., land, labor, and capital -- are rewarded according to their contributions to the marginal product. Profit thus is no longer accounted for as a surplus extracted from labor but as a "contributing factor" of production. Meanwhile, the theory of diminishing marginal utility which causes the problems which Blaug indicates is consistently downplayed. In short, Blaug's denial that neo-classical theory is in no way a justification of the existing capitalist order does not stand up to scrutiny. It is clearly among the functions of the new economics to justify capitalist economic institutions and no accident that neo-classical theory appeared just when such a justification was especially needed.

The above explanation, however, is but one component of an explanation of the development of neo-classical theory. Although answering socialist critics of capitalism was one reason for its development, other changes in the capitalist system during the nineteenth century also played important roles. Blaug, in discussing his third candidate mentioned above, considers only one of these in the Marxist Bukharin's Economic Theory of the Leisure Class. Bukharin ties the development of the new theory to institutional changes in the capitalist system and says that "the psychology of the consumer is characteristic of the rentier" and that the theory represents "the ideology of the bourgeoisie who has already been eliminated from the process of production." 30 Blaug attempts to criticize this theory, but fails.

Any amateur historian can see the flaw in this argument. Nevertheless, it has a certain force: the consumer and not the capitalist is the dominant figure in neoclassical economics; the employer of labor is no longer identified with the investor of capital; the manager, the entrepreneur, and the rentier have become separate agents, and personal saving is regarded as the typical source of investment funds. All this involves a conception of economic institutions different from that found in Smith and Ricardo. Economic growth is now taken
for granted and problems of secular stagnation or technologic unemployment disappear in economic literature. It is not farfetched to see a connection between changes in the economic structure of society around the middle of the century and the theoretical innovations of the subjective value trio. The trouble here is in making the connection concretely in terms of a personal intellectual awareness of institutional changes -- something that Bukharin failed to do -- and at the same time of taking account of differences in the economic structure of Austria, France, and England.

Blaug's glib rejection of Bukharin's account faces at least two serious problems. First, whether a theory is a reflection of any set of circumstances in society cannot be based on the personal awareness of the theorists who propound the theory, but upon whether that theory is indeed a reflection of those circumstances. Even had Jevons, Menger, and Walras all failed to see the changes in the economy of which both Blaug and Bukharin are aware, one would be justified in relating the victory of their theory to those changes if they had in fact occurred and were responsible for the success of the theory. Furthermore, the fact that there is no written evidence that the neo-classical theories are related to changes in the society of nineteenth century Europe does not entail a lack of awareness by the authors. These structural changes in the economy made up the environment in which the authors were living, and they were doubtless aware of what was happening to a considerable extent.

Second, Bukharin's failure to take account of the different countries in which the neo-classical theorists lived is no criticism. Naturally there were differences in the economies of the different countries, just as there are today (and were during the classical period) differences between countries. What is important, however, is not each specific difference, but the fact that they share a general economic system and are explained by the same theory for that reason. Although one must be aware of their differences in applying the theory, this is no reason for constructing a separate theory for each country. Hence, it is difficult to understand Blaug's criticism based upon the three early neo-classical theorists' (Jevons, Menger, and Walras) different countries.

Bukharin's explanation is closer to the truth than that of Blaug, but his account leaves out several of the important historical causes and is thus less than satisfactory. Bukharin was a Marxist who shared the perspective of many other Marxists in viewing the neo-classical theory as largely apologetics. However plausible such an explanation might seem -- and the reader should recall that I have already acknowledged that apologetics is part of the reason behind the new economics -- it is far from wholly adequate and leaves out no less than two crucial causes. This failure has stood in the way of an accurate
Marxist analysis of the rise of neo-classicism, as well as preventing Marxists from appreciating the contributions that neo-classical theory can offer socialist theory. In the remainder of this section, I shall attempt to contribute something to the understanding of the first of these problems; discussion of the significance of neo-classical theory for a socialist economy will have to await the last chapter.

I shall focus my attention on two changes which occurred during the nineteenth century which played important roles in the development of the new economics. They were not, of course the only significant developments of the century, but they were the most important for the new theory's eventual triumph at the end of the century. Although Marxists have failed to incorporate them satisfactorily into the explanation of the rise of neo-classical theory, both changes were noticed by Marx and are among his more important contributions to economic theory.

The first development which we must consider is the intensification of the struggle between capitalists and the resulting domination of the market by an ever smaller number of capitalists. There are many examples of this, but none is more striking than the development of the American oil industry. The first oil well was dug in August, 1859 by Samuel Drake, and by December, 1861, many wells are already pumping 2000-4000 barrels of oil per day as new uses are found for a product which had previously been only a bottled medicine. The price of oil had by then fallen from $20 a barrel in January, 1860 to $.10 a barrel. We have here what must be conceded to be a triumph of the free enterprise method of economic development.

By the opening of 1872, [droves of new producers] had produced nearly 40 million barrels of oil, and had raised their product to the fourth place among the exports of the United States, over 152 million gallons going abroad in 1871.... As for the market, they had developed it until it included almost every country of the earth.... Not only were illuminating oils being exported. In 1871 nearly seven million gallons of naphtha, benzine, and gasoline were sent abroad, and it became evident now for the first time that a valuable trade in lubricants made from petroleum was possible.

At this point in the development of the industry, the classical principle of free entry into the marketplace -- a central tenet of the model of perfect competition and the benefits which are said to accompany it -- was a reality, and the resulting competition was responsible for keeping the price low and driving it even lower.

The problem with the classical theory in this instance is that the competitive situation is not a stable one. Although the theory recognizes that one result of competition is that some firms will go out of business when they fail to perform well, the theory has never come to
grips with the eventual consequence of a small number of firms controlling the industry. It rather assumed that as the less efficient firms went under, others would enter the market to replace them. This did not, in fact, occur and the market consequently passed into the hands of a small number of firms.

It would be difficult to overstate the ferocity of the competition in nineteenth century capitalism. Whereas the classical economists had been concerned with the class war between the capitalists and the landlords, by the middle of the nineteenth century that battle had been won and the individual capitalist found him/herself embroiled in a fierce struggle for survival. The small entrepreneurs who had been the subject of Smith's and Ricardo's theories were rapidly passing from the scene, and those who remained faced the difficult task of surviving as Davids confronted with the Goliaths of big business. Again, the oil industry provides a perfect example.

In the fall of 1871, certain Pennsylvania refiners, it is not certain who, brought to [Rockefeller and his friends] a remarkable scheme, the gist of which was to bring together secretly a large enough body of refiners and shippers to persuade all the railroads handling oil to give to the company formed special rebates on its oil, and drawbacks on that of other people. If they could get such rates it was evident that those outside of their combination could not compete with them long and that they would become eventually the only refiners. They could then limit their output to actual demand, and so keep up prices. This done, they could easily persuade the railroads to transport no crude for exportation, so that the foreigners would be forced to buy American refined. They believed that the price of oil thus exported could easily be advanced fifty percent. The control of the refining interests would also enable them to fix their own price on crude. As they would be the only buyers and sellers, the speculative character of the business would be done away with. In short, the scheme they worked out put the entire oil business in their hands. It looked as simple to put into operation as it was dazzling in its results.

And in this particular case, the results were indeed dazzling.

Under the combined threat and persuasion of the Standard armed with the South Improvement Company scheme, almost the entire independent oil interest of Cleveland collapsed in three months' time. Of the twenty-six refineries, at least twenty-one sold out. From a capacity of probably not over 1,500 barrels of
crude a day, the Standard Oil Company rose in three months' time to one of 10,000 barrels. By this manoeuvre it became master of over one-fifth of the refining capacity of the United States..... The transaction by which it acquired this capacity was so stealthy that not even the best informed newspapermen in Cleveland knew what went on.\textsuperscript{38}

The effect of these changes in the system was to heighten the concern of capitalists, and hence of capitalist theorists, with the problem of survival in the marketplace. We need not concern ourselves with whether economists of the time left a record of such a concern in a form which can today be verified psychologically as Blaug suggests is necessary;\textsuperscript{39} we can be satisfied that such a sweeping change with such important consequences for capitalists did not go unnoticed and that theorists who were concerned to reflect the actual workings of the existing economic system would incorporate it in their theories. And indeed, the neo-classical theory does just this. Whereas the labor theory of value, with its emphasis on the relations of production, was ideally suited to show the superiority of capitalism over feudalism as a system of production, the neo-classical theory's emphasis on consumption was better suited to address the new concern of the competing capitalists with sales and the "realization" of their products.

No complex argument is required in order to establish the connection between the consumption-based neo-classical theory and the increased concern with the sales effort. It shows itself clearly in the close relationship between the new economic theory and the development of marketing. Marketing as a separate field developed only in the twentieth century.\textsuperscript{40} Classical economics did not assign an important role to marketing; although capitalists prior to the twentieth century surely sought to advertise their products, as have sellers throughout the ages, the sales effort was not an integral part of economic theory and competition was seen largely as price competition. Consumers' decisions were seen as based upon their evaluation of the quality of products as well as the price, but the attempt to convince consumers of products' quality played no role in economic theory. Rather, it was assumed that consumers would discern which products were superior based on their experiences after purchasing them. Neo-classical theory, with its emphasis on the sales effort and the sphere of consumption, altered this and paved the way for marketing theory which plays so large a role in modern society.\textsuperscript{41}

In addition to increased concern with marketing and the sales effort, capitalists at the end of the nineteenth century who were worried about survival in the competitive market turned to neo-classical economics because it focused upon the efficient allocation of given resources in the short run. The latter perspective, which replaced the classics' concern with the longer run question of the nature and causes of the wealth of nations, makes more sense to one who must make the most efficient use of resources in order to compete with competitors. Critics
of neo-classical economics have criticized this perspective for replacing a big question with a small one, but we must again emphasize that where survival is concerned, one does not ask about the size of the question being posed, but about what is most relevant to the concerns at hand. And to the capitalist facing fierce competition from other firms, the neo-classical model's emphasis on efficiency and the sales effort gave the most relevant answers.

The difference between classical and neo-classical economics is thus in part a result of the different objectives of the two theories, and one is hard put to maintain that either is correct or incorrect simpliciter. The classics were not indifferent to consumption, but their primary concern was to show that capitalism can greatly increase production compared with feudal institutions and consequently focused their attention on the sphere of production; consumption would naturally increase as production improved and they saw no need to explain this. The shift to neo-classical economics, on the other hand, can be seen as a natural response to the winding down of this competitive battle between the capitalist and landlord classes and the intensification of the competitive battle within the capitalist class. The successful marketing of products requires that the seller satisfy consumers' preferences and maximize efficiency in the use of resources, and these concerns lie at the core of neo-classical theory.

We have so far seen that neo-classical economics developed in response to the historical development of capitalism in the nineteenth century, rather than as an "autonomous intellectual development;" and that it must be seen as something more than mere apologetics as many Marxists have characterized it. There remains an important criticism of the neo-classical theory, however, and we must now examine that criticism. Our concern is not with how capitalists can best maximize their profits and survive the competitive struggle with other capitalists, but with the prospects for the future survival of the system. What is best for the success of the individual capitalist in the competitive struggle is not necessarily what will ensure the continued survival of the system, as Marx points out in Capital.

... experience shows to the intelligent observer with what swiftness and grip the capitalist mode of production, dating, historically speaking, only from yesterday, has seized the vital power of the people by the very root -- shows how the degeneration of the industrial population is only retarded by the constant absorption of primitive and physically uncorrupted elements from the country -- shows how even the country labourers, in spite of fresh air and the principle of natural selection, that works so powerfully amongst them, and only permits the survival of the strongest, are already beginning to die off. Capital that has such good reasons for denying the sufferings of the legions of workers that surround
it is in practice moved as much and as little by the sight of the coming degradation and final depopulation of the human race, as by the probable fall of the earth into the sun. In every stock-jobbing swindle every one knows that some time or other the crash must come, but every one hopes that it may fall on the head of his neighbour, after he himself has caught the shower of gold and placed it in safety. *Apres moi le deluge!* is the watchword of every capitalist and of every capitalist nation.... To the out-cry as to the physical and mental degradation, the premature death, the torture of over-work, it answers: Ought these to trouble us since they increase our profits? But looking at things as a whole, all this does not, indeed, depend on the good or ill will of the individual capitalist. Free competition brings out the inherent laws of capitalist production, in the shape of external coercive laws having power over every individual capitalist.\(^4^4\)

This brings us to the final reason for the neo-classical revolution which we shall examine, the concern with equilibrium theory. Since neo-classical economics accepted the principle that equilibrium occurs at full employment from its classical predecessor,\(^4^5\) it does not seem too farfetched to expect that a better understanding of equilibrium would yield a better understanding of how the system corrects instabilities. The neo-classical theory provided a much more detailed analysis of general equilibrium than had classical theory; Schumpeter points out that it was only in the period under discussion that the conception of an economic cosmos that consists of a system of interdependent quantities was fully worked out with all its problems, if not quite satisfactorily solved, at least clearly arrayed and with the idea of a general equilibrium between these quantities clearly established in the center of pure theory.

This was the achievement of Walras. So soon as we realize that it is the general-equilibrium system which is the really important thing, we discover that in itself, the principle of marginal utility is not so important after all as Jevons, the Austrians, and Walras himself believed.\(^4^6\)

Without entering into a detailed discussion of how this equilibrium theory works, we may note at once that its principal problem is that it is a "static" economic theory; that is, "the relations from which we start... link elements that carry the same time subscript" and the theory thus does not look at the economic system as having to make adjustments over an extended time period.\(^4^7\)
Now for the businessperson or economist interested in the micro-economic questions related to the survival and prosperity of the individual firm, the static perspective makes a good deal of sense. Many of these decisions are short-run decisions where one can posit a given supply of productive factors. Based upon this "the essence of the economic problem becomes to search for the conditions under which given productive services are allocated with optimal results among competing ones." Once the concern becomes, however, not the short-run problem of optimizing the use of given factors of production but the direction of the economy overall, it is impossible to abstract out the changes in supplies of the factors of production and the static framework thus becomes useless. The early neo-classical economists were unaware of the limitations of their static framework, although later economists -- including both Schumpeter and Blaug -- have shown an awareness of the problem.

This enables us to sort out the confusion which has surrounded the dispute over the labor theory of value and its neo-classical counterpart. We can concede that the neo-classical theory was a limited success and an advance, given its assumption of fixed supplies of factors of production. There are many economic decisions where such an assumption is warranted, and the neo-classical theory would be an important tool for decision-making in a socialist economy no less than in a capitalist one. Indeed, too few socialists have gone beyond criticism of the capitalist economy to discuss the workings of a socialist economy, although Kautsky, for one, pointed out the possibility of a socialist regime using the already existing capitalist price system as a provisional guide after the revolution. Indeed, some of the Austrian developers of the neo-classical theory suggested how their model would apply to a socialist economy. Schumpeter points out that

the Austrians were in the habit of using the model of a Crusoe economy for the purposes of explaining certain fundamental properties of economic behavior. Therefore, it was particularly easy for them to realize that there was nothing specifically capitalist in their basic concept of value and its derivatives such as cost and imputed returns; these concepts are really elements of a completely general economic logic, of a theory of economic behavior that may be made to stand out more clearly in a model of a centrally directed socialist economy than it can in the capitalist garb in which it presents itself to the observer whose historical or contemporaneous experience is with a capitalist world.

The success of the neo-classical theory in answering the pricing questions which confront any exchange economy does not, however, follow it into the realm of the causes of the movement of the economy. The theory is a "microeconomic" theory, and as if with a microscope, it focuses our attention on the smaller units of the economy (i.e., the
firms and households) and draws it away from the larger picture. The inability of the neo-classical theory in this regard shows through clearly in their weak performances in the explanation of the macro-economic problem of business cycles, such as Jevons' sunspot theory. Of their analyses, Schumpeter (who always took very seriously the question of business cycle analysis) says they were of the sort that besides being suggested by untutored observation, were bound to appeal to economists who had developed economic statistics as the centerpiece of their science. As we have seen above, they naturally exaggerated the importance of their central achievement. They saw more in it than we do, that is, more than a logical scheme that is useful for clearing up certain equilibrium relations but is not directly applicable to the given processes of real life. Now, from the standpoint of this type of analysis, it is natural to locate the 'causes' of observed disturbances either outside of the economic system or in the fact that the economic engine, like any engine, never works with precision.\textsuperscript{52}

This question of business cycles is, however, the crucial question on which the debate between Marxist and capitalist theory rests, and the failure to contribute to an understanding of it is a critical failing of the neo-classical theory. Marx indicated that capitalism's demise would result from its failure to provide employment for the workers. He maintained that as the ranks of the unemployed swell and the "industrial reserve army" grows in size, the workers would become aware of the contradictions in the system and seek its replacement by socialism. Leaving aside for the present the question of whether large scale unemployment does have the effect which Marx predicted, it is clear that an important part of a response to Marxism is to show how such unemployment as Marx predicts can be avoided. Neo-classical theory offers no guidance on this problem and is thus irrelevant to the question of the superiority of Marxism or capitalism.

In this sense, the neo-classical theory is not really an alternative to the classical and Marxist theories, but a rather different (although closely related) discipline. It cannot claim to do a better job of answering the critical questions of the ultimate fate of the capitalist economic system because it does not address these concerns. Blaug notes that "the only defensible statement of the 'new' paradigm is the view that pricing and resource allocation with fixed supplies of the factors of production is the economic problem, largely or entirely dismissing all questions about changes in the quantity and quality of productive resources through time."\textsuperscript{53} Now if the neo-classical theory is viewed as a challenger to the classical theories (including Marx's) and as claiming that the static perspective is superior to a more dynamic perspective, then we can pass a rather harsh verdict; I have already noted that history gives no reason to regard economic
development as stalling either at the end of the nineteenth century or at any time since, and that the macroeconomic question of business cycles loomed larger than ever. But we need not be so harsh. We can simply admit the success of the theory as far as it goes and move on to a consideration of the question which is most important for our purposes -- the problem of the business cycle.
1. Marx's Theses on Feuerbach, written in the spring of 1845, are an important statement of his aim as a social scientist. He closes with the famous words: "The philosophers have only interpreted the world, in various ways; the point, however, is to change it." Earlier in the theses, he says: "The question whether objective truth can be attributed to human thinking is not a question of theory but is a practical question. Man must prove the truth, that is, the reality and power, the this-sidedness of his thinking in practice. The dispute over the reality or non-reality of thinking which is isolated from practice is a purely scholastic question." (Cf. "Theses on Feuerbach," pp. 143-5 in The Marx-Engels Reader, ed. by Robert Tucker, second edition, New York, Norton, 1978.)

2. Marx spelled these views out in his early works, especially in The Economic and Philosophic Manuscripts of 1844. (Cf., ibid., pp. 66-125, passim.) I shall not enter into a discussion of the relationship between Marx's early and late writings, and shall simply state my view that there is no fundamental inconsistency between these writings, although it certainly makes sense to view the later works as more mature.

3. I have already mentioned Ricardo's theory as an example of science in the last chapter (cf., pp. 9-11 in Chapter I). I shall also discuss it in more detail in this chapter (cf., pp. 57-60).


5. An example of this is Marcuse's One Dimensional Man which is premised upon the power of the capitalist system to control people's consciousness and thus forestall challenges to it. If I may generalize hastily, I should say that this view is characteristic of other members of the Frankfurt School, including Habermas.

6. It was Marx who initially used this formulation; cf. the quote on pp. 68-9.


8. The date of the victory is difficult to set precisely, but cannot be established as earlier than the eighteenth century, and Schumpeter has dated the beginning of developed capitalism only from 1821 in

9. In discussing feudalism, Pirenne points out that "from the economic point of view the most striking characteristic of this civilisation is the great estate" (Pirenne, op. cit., p. 8), and that "each estate devoted itself to the kind of economy which has been described rather inexactlly as the 'closed estate economy,' and which was really simply an economy without markets." (Ibid., p. 9.)


11. Blaug summarizes: "The leading features of the mercantilist outlook are well known: bullion and treasure as the essence of wealth; regulation of foreign trade to produce an inflow of specie; promotion of industry by inducing cheap raw-material imports; protective duties on imported manufactured goods; encouragement of exports, particularly finished goods; and an emphasis on population growth, keeping wages low. The core of mercantilism, of course, is the doctrine that a favourable balance of trade is desirable because it is somehow productive of national prosperity." (Ibid., pp. 10-11.) Blaug notes objections to the use of the term 'mercantilism', but says "as a description of a central tendency in economic thought from the close of the 16th to the middle of the 18th century, the label retains general validity." (Ibid., p. 10.)

12. Two of the more important examples are the deer-beaver example where Smith shows that the quantity of labor should naturally regulate the exchange rates for the two commodities, and the water-diamond example, where he argues against using utility as a criterion for distinguishing prices.


14. Malthus was not a mercantilist. He argued his theory against the background provided by Adam Smith and thus represented a viewpoint which was scientifically more advanced than the mercantilists.


16. There is an interesting parallel here between the development of the sciences of physics and economics. Adam Smith occupies a position similar to that of Galileo. He begins from new and
important phenomena and offers an original explanation of those phenomena. He does not, however, succeed in reducing the new science to a few principles. This task remains for later theorists, and here we find Ricardo and Malthus, who are similarly situated to Newton and Leibniz. Ricardo and Newton provide the ultimately successful theories, while Leibniz and Malthus are their most important and influential challengers whose theories later surface in radically revised form as important challengers to the victors (i.e., Keynesian economics and relativity physics).


19. One might argue that it is incorrect to view Malthus as a representative of feudal interests since feudalism had already become obsolete as a social form. Nevertheless, we justify designating Malthus representative of feudalism because of his identification of the interests of society with those of the landlords, a position which is more clearly feudal than anything else.

20. My use of this term corresponds with that of most economists today, but is not consistent with all usages of the term. Keynes referred to "classical economists" as those who accepted Say's Law, and included many writers whom I would designate as "neo-classical" as "classical".

21. Marxists who have accepted the use of neo-classical methods include Kautsky and Lange. Most important of the challengers to neoclassicism within capitalist theory is Piero Sraffa's The Production of Commodities by Means of Commodities: Prelude to a Critique of Economic Theory.


27. Quoted by Meek in Hunt and Schwartz, op. cit., p. 88.

28. Joan Robinson's Economic Philosophy is an excellent discussion of this issue.


30. Ibid., p. 316.

31. Ibid., pp. 316-7.

32. I have, for example, already noted another important element in capitalism's final victory over feudalism which made unnecessary attention to the question of the division of wealth between the capitalist and landlord classes. See my discussion of Ricardo, pp. 57-60 above, and especially p. 58.


34. Tarbell discusses the explosion which occurred in the town of Pithole, Pa. in 1865: "In January there had suddenly been struck on Pithole Creek in a wilderness six miles from the Allegheny River a well, located with a witch hazel twig, which produced 250 barrels a day -- and oil was selling at eight dollars a barrel! Wells followed in rapid succession. In less than ten month the field was doing over 10,000 barrels a day. This sudden flood of oil caused a tremendous excitement. Crowds of speculators and investors rushed to Pithole from all over the country.... In six weeks after the first well was struck Pithole was a town of 6000 inhabitants. In less than a year it had fifty hotels and boarding houses; five of these hotels cost $50,000 or more each. In six months after the first well the post-office of Pithole was receiving upwards of 10,000 letters per day and was counted third in size in the state -- Philadelphia, Pittsburg, and Pithole being the order of rank." (Ibid., pp. 24-5.)

35. Although a detailed discussion of the reasons is not presently possible, we can note at least that among the more important reasons is not simply collusion, but the increasingly large capital outlays required in order to enter mass production.

36. "The unit of that private-property economy was the firm of medium size. Its typical legal form was the private partnership. Barring the 'sleeping' partner, it was typically managed by the owner or owners, a fact that it is important to keep in mind in any effort to understand 'classic' economics. The facts and problems of large-scale production and, in connection with them, those of joint stock companies were recognized by economists after everyone else had
recognized them." (Schumpeter, op. cit., p. 545.)

37. Tarbell, op. cit., pp. 54-5.

38. Ibid., pp. 67-8.

39. Blaug does this both in his criticism of Bukharin and in denying that an awareness by the early neo-classics of various sources.

40. Alderson notes that marketing "emerged as a separate discipline in the twentieth century and was oriented to immediate results in the business world. Perhaps its greatest weakness, until recently, has been that it had concentrated on the attempt to establish control without giving adequate attention to the companion steps of explanation and prediction." (Wroe Alderson, Marketing Behavior and Executive Action, Richard D. Irwin, Inc., Homewood, Ill., 1957, p. 9.

41. Alderson clarifies the relationship between marketing theory and economic theory: "The use of the term 'theory' in marketing pertains to something which is less formal and more comprehensive than economic theory in its search for relevance to actual behavior.... Yet marketing men are also concerned about systems of action and are eager to apply the tools of economic analysis which many of them became familiar with in their basic training. The problems of the market analyst are essentially economic problems, since he also is concerned with the utilization of resources to produce the maximum of consumer satisfactions through goods and services." (Ibid., p. 8.)

42. Joan Robinson has said: "For Ricardo the Theory of Value was a means of studying the distribution of the total output between wages, rent, and profit, each considered as a whole. Marshall turned the meaning of Value into a little question: why does an egg cost more than a cup of tea?... Keynes changed the question back again. He started thinking in Ricardo's terms: output as a whole and why worry about a cup of tea." (Joan Robinson, "On Re-reading Marx," pp. 22-3; quoted in Meek, Studies in the Labor Theories of Value, p. 235.) Likewise, Blaug concedes that "neoclassical theory achieved greater generality and economy of argument by explaining both factor and product prices on the basis of a single principle.... Greater generality, however, is rarely an unambiguous achievement. Unless a new theory encompasses all the variables of the old, the order of generality will vary with the question under analysis. Neoclassical economics was in some ways more restrictive than was classical theory: for example, it took the supply of labor as given.... When the supply of resources is given at the outset of the analysis, [a number of] difficulties largely disappear. But as soon as we leave the realm of short-run analysis and take up classical questions about capital accumulation and population growth, the claim of the new economics that distribution theory is nothing more than a particular aspect of value theory seems to have only formal significance.
An unkind critic might say that neoclassical economics indeed achieved greater generality, but only by asking easier questions." (Blaug, op. cit., p. 314.)

43. That consumption increases as productive capacity grows was reflected in the classical adherence to Say's Law of Markets. It is significant that Malthus, one of the few dissenters to this law, was a champion of landlord interests.


45. I have already mentioned this principle, Say's Law of Markets (cf., fn. above). It was later challenged by Keynes, and we shall discuss it in more detail in the next chapter. For now, we simply note, with Schumpeter, that in neo-classical economics, the basic vision of the economic process is unchanged. "They saw the subject matter of economic analysis, the sum total of things that are to be explained, much as Smith or Mill had seen them, and all of these efforts aimed at explaining them more satisfactorily." (Schumpeter, op. cit., p. 892.)

46. Ibid., p. 918.

47. Ibid., p. 970. One might wonder how an economic system can abstract from time and treat all phenomena as occurring virtually simultaneously. Schumpeter explains: "... we observe when going over Walras' list of assets that very considerable emphasis is placed upon stocks or inventories.... Since the existence of these inventories presupposes a certain past behavior of the people concerned and since their current reproduction presupposes certain expectations, the system -- even if perfectly stationary -- still depicts a process in time and might therefore be called 'implicitly dynamic.' If Walras did not feel like this and if we agree with him in calling it static, this is only because of a device that was perhaps justified by the purpose of exhibiting the logical structure of economic life but is highly artificial all the same: he tried to build up an equilibrium state ab ovo in the manner in which it would be built, if smooth and instantaneous adaptation of all existing goods and processes, to the conditions obtaining at the moment, were feasible." (Ibid., p. 1002.)


49. Schumpeter shows awareness of this in saying, "the relations from which we start, according to whether they link elements that carry the same time subscript or different ones, may define a static or a dynamic equilibrium. The leaders of that period used only the former concept -- at least in their mathematical set-ups -- and do not seem to have had any precise ideas about the problems that center in the latter." (Op. cit., p. 970.) For Blaug, cf., fn. 46
above.


51. Ibid., pp. 986-7. The reference here is, of course, to Daniel Defoe's Robinson Crusoe. Marx objected to the implications of using this to characterize economics, and rightly so based on the psychology which is inherent in it. In the present case, however, what is significant is that there can clearly be no question about competition in such an environment and thus the socialist model of an economy with only one firm is similar.

52. Schumpeter, op. cit., p. 1136.

III. BUSINESS CYCLES AND MARXIAN ECONOMIC THEORY

We turn now to the central question in the Marxian theory of political economy and revolution, the crisis of unemployment which lies at the end of the business cycle. Marx predicted that workers would revolt and overthrow capitalism when the irrationality of the system became clear to them during a devastating depression. He attempted to show that such a depression is the inevitable result of the normal operation of the capitalist economic system. Any appraisal of the Marxian system today therefore must rest upon an analysis of this part of Marx's argument.

The key to understanding the dispute between Marx and both his capitalist and socialist revisionist opponents is found in the principle of Say's Law. Say's Law states that in a free enterprise, competitive economy there is a tendency toward equilibrium at full employment; wherever unemployment exists, it is merely temporary and the mechanisms of supply and demand will tend to dry it up. Clearly, if this is true then capitalism should be able to sustain itself indefinitely and the Marxian prediction of the imminent demise of the system is false. Marx recognized this and assailed Say's Law as "childish" early on in Capital.

Nothing can be more childish than the dogma, that because every sale is a purchase, and every purchase a sale, therefore the circulation of commodities necessarily implies an equilibrium of sales and purchases.... No one can sell unless some one else purchases. But no one is forthwith bound to purchase, because he has just sold. Circulation bursts thorough all restrictions as to time, place, and individuals, imposed by direct barter, and this it effects by splitting up, into the antithesis of a sale and a purchase, the direct identity that in barter does exist between the alienation of one's own and the acquisition of some other man's product.... If the interval in time between the two complementary phases of the complete metamorphosis of a commodity become too great, if the split between the sale and purchase become too pronounced, the intimate connexion between them, their oneness, asserts itself by producing -- a crisis.¹

Marx's belief in a revolutionary crisis set him apart not only from capitalist political economists, but also from non-revolutionary
socialists such as Bernstein and the revisionists. Bernstein's **Evolutionary Socialism** rejected Marx's thesis that the capitalist economic engine contained within itself the seeds of its destruction. Bernstein says:

> Signs of an economic world-wide crash of unheard-of-violence have not been established, nor can one describe the improvement of trade in the intervals between the crises as particularly short-lived.2

Bernstein points to two features of modern capitalism (in his day) which adapted the system to solve its economic problems: "the enormous extension of the world market, in conjunction with the extraordinary shortening of time necessary for the transmission of news and for the transport trade," and "the enormously increased wealth of the European states, in conjunction with the elasticity of the modern credit system and the rise of industrial cartels."3 The complete inadequacy of this explanation did not prevent Bernstein's work from gaining enormous influence, an influence which proved disastrous for Western socialism.4 In this dispute, as well as in Marx's arguments against capitalist theory, the key is Say's Law.

The importance of Say's Law has been obscured by the tendency to focus upon the differing theories of value. Marx developed his account of the theory of value and of surplus value in Volume I of *Capital*, his "Critical Analysis of Capitalist Production."5 This is the only completed volume of the work; the second two volumes of *Capital* were compiled by Engels from Marx's notes. This, together with the centrality of the theory of value in Marx's work, perhaps accounts in part for the attention paid to the theory of value, but the fact remains that this part of Marx's work does not yield a theory of crisis, as Marx himself informs us at the beginning of the second volume. Marx here points out that the first and third stages of "the circular movement of capital," the transformation of money into factors of production and the final sale of the finished commodities, "were discussed in Book I only in so far as this was necessary for an understanding of the second stage, the process of production of capital."6 Volume II takes up the question of "The Process of Circulation of Capital,"7 and only here is the problem of the realization (or sale) of the products addressed directly. For purposes of this discussion, Marx assumes "not only that the commodities are sold at their values but also that this takes place under the same conditions throughout. Likewise disregarded therefore are any changes of value which might occur during the movement in circuits."8 Marx has at this point pushed the problem of value into the background and turned his attention elsewhere. An appreciation of the Marxian argument today requires that we do likewise.

Marx's argument in Volume I is a penetrating account of profit under capitalism. In it, Marx explains that under capitalist production the owners of capital derive their incomes from the surplus which is left over after the workers have received the share necessary for their
subsistence. The Ricardian labor theory of value is employed to show how workers are exploited under capitalism. In the course of the argument, Marx indicates that the system faces problems with the realization of the surplus, but he does not develop the argument until the second volume. One cannot derive an argument about the instability of the capitalist system, however, based upon the premise that workers are exploited; workers do not revolt because they are exploited, but because of the inability of the system to provide them with the work necessary to acquire the necessities of life. Thus, to focus upon the exploitation argument diverts attention from the practically more important issue of crises. The discussion of Say's Law, in fact, does not depend even peripherally on the theory of value which one accepts; the neo-classical economists, for example, had no trouble adapting Say's Law to their system after rejecting the labor theory of value.

Although the theory of capitalist instability and crisis is an offspring of Marx, it is not especially useful to approach it by studying the Marxian texts, particularly in the 1980's. Marx's account of crisis is incomplete in no less than three ways. First, the volumes which contain the theory were never completed before Marx's death, indicating that Marx himself may not have been fully satisfied with his understanding of the problem. Indeed, there is a major contradiction in Capital that points to a second problem. Marx understands capitalism to be a system of incessant accumulation by the capitalists and makes it clear in Volume I that they can never be satisfied with what they have accumulated. Joan Robinson points out that for Marx, competition and technical progress set up an urge to accumulate, for each capitalist fears to fall behind in the race if he does not continually invest in new capital equipment embodying the latest developments. Thus, the problem of effective demand does not arise, and though Marx explicitly repudiated Say's Law as childish, yet he no more than Mill or Marshall admits the divorce between decisions to save and decisions to invest which, in Keynes's system, appears as the root cause of crises and unemployment. Now of course, capitalists' desire to accumulate is based upon their expectations that such accumulation will bring a profit and Marx would not have expected them to throw away their money. Nevertheless, he does not develop the problem and fails to present an account of effective demand.

This failure is characteristic of all the economists of Marx's time; only in the third and fourth decades of the twentieth century do we find theories of effective demand coming into prominence. The age of Marx's theory is, in fact, the final problem we encounter in his writings. Marx failed to foresee the development of a number of important factors in later history -- imperialism, two World Wars, the growth of unions into effective bargaining powers, government fiscal policies --
which are important in any explanation of the modern world. This is not a criticism of the theory, but merely an indication of the limitations of any theory of society. A theory of society can show only the tendencies toward the development of any social system; it cannot predict every specific event. The specific development of the society, however, has an important impact on any theories presented after that development, and today we must take account of the developments which Marx did not foresee.

Nevertheless, Marx's account of business cycles and crises remains a monumental achievement the importance of which is easily overlooked both by reactionary critics and by revisionist "socialists" alike. Marx's genius is succinctly summed up by Schumpeter who, after noting Marx's recognition of "a wide variety of more or less relevant elements," says

All that is common sense and substantially sound. We find practically all the elements that ever entered into any serious analysis of business cycles, and on the whole very little error. Moreover, it must not be forgotten that the mere perception of the existence of cyclical movements was a great achievement at the time. Many economists who went before him had an inking of it. In the main, however, they focused their attention on the spectacular breakdowns that came to be referred to as 'crises'. And those crises they failed to see in their true light, that is to say, in the light of the cyclical process of which they are mere incidents.... Marx was, I believe, the first economist to rise above that tradition and to anticipate -- barring the statistical complement -- the work of Clement Juglar.... This is enough to assure him high rank among the fathers of modern cycle research. 10

In the following sections of this chapter, I present an historical survey of business cycle analysis and bring the Marxian theory up to date. The argument will show that nothing in the field refutes Marx's claims either of the inherent instability of the capitalist system or of the revolutionary implications of this instability. Beginning in the first section with classical political economy, I discuss the role which Say's Law of Markets played in the classical system and explore Say's contribution to the understanding of crises. This contribution was at the time a valuable and necessary one, and his shortcomings must be interpreted as a result of the future development of the system outgrowing it. In the second section, I discuss the role of Say's Law in the neo-classical system which developed at the end of the nineteenth century. Although neo-classical theory is a departure in many ways from the classical theory, it retained Say's Law and the general system of laisser-faire that the classics introduced. Indeed, the discussion will indicate that Say's Law was fundamental to the neo-classical system and that this relationship underlies the complete
failure of the neo-classical theory of economics. That failure became apparent to the economics profession during the Keynesian revolution of the 1930's, a movement which is discussed in the third section. The relationship between Marx and Keynes is a controversial one. Some Marxists have followed Paul Mattick in maintaining that "Keynesianism merely reflects the transition of capitalism from its free-market to a state-aided phase and provides an ideology for those who momentarily profit from this transition. It does not touch upon the problems Marx was concerned with." Mattick's first sentence in this quote is true, but the second is false. Both Marx and Keynes perceived the instability inherent in the process of capitalist production and presented an analysis of the causes of that instability. Their analyses, while different in important ways, are not inconsistent. Of course, Keynes held that the instability was manageable within the context of capitalism while Marx denied this, and this is obviously a crucial difference on which the verdict is not yet in. The similarities are, however, no less important than the differences, and Keynes provides modern Marxists with an important tool for understanding capitalism today. In the final section, I attempt to assess some of these implications and to indicate the future prospects for capitalism based upon the preceding analysis.

Say's Law of Markets and Business Cycle Theory: 1800-1880

The classical political economists presented a conception of a self-regulating economy which automatically attained an economic optimum by all private owners of productive resources pursuing their own self interest. The periodic occurrence of "crises" and "gluts" presented the most serious empirical problem for the theory, and Schumpeter remarks that "one of the most important achievements of the [classical] period ..., and surely one of the few that were truly original, was the discovery and preliminary analysis of business cycles." The significance of the phenomenon for the laissez-faire model is obvious; a crisis is clearly not a social and economic optimum, and the theory must provide both an explanation for the event and an account of how the crisis will be resolved. The theoretical principle which addressed this problem was Say's Law of Markets.

The current textbook rendering of Say's Law is that "supply creates its own demand," an interpretation which, although not inaccurate, was formulated by Keynes in order to address modern problems. Say, however, lived in a different world than Keynes and was addressing different problems. Like Smith and Ricardo, Say was defending laissez-faire capitalism against those who preferred greater social control over production using feudal institutions. The latter argued that uncontrolled production resulted in crises because it permitted general overproduction of commodities which led to waste. The argument here was based upon an analogy with the output of a particular industry, e.g., linen. Clearly, if too much linen is produced for a society to absorb through consumers' demand for clothes, etc., then some of the linen will go to waste while the price of linen, as a result of oversupply
relative to demand, will fall below that which is required in order for producers to cover their costs. Generalizing this analogy to the society as a whole, it would follow that commercial crises are the result of general overproduction of commodities by the various industries in the economy. The object of Say's attack was this analogy.

Say, in effect, pointed out that this argument involves a fallacy of composition (a fallacy which, ironically, Keynes would later show was committed in defending Say's Law.) Say pointed out that in the larger economy, all production -- except such minor examples as family farms practicing subsistence and home gardens -- is for sale and thus creates a demand for commodities. Schumpeter sums up Say's insight as follows:

Strictly speaking, there is no more sense in speaking of an economic system's total or aggregate demand and supply and, incidentally, of overproduction than there is in speaking of the exchange value of all vendible things taken together or of the weight of the solar system taken as a whole. But if we do insist on applying the terms demand and supply (sic) to social totals, we must be careful to bear in mind that they then mean something that is entirely different from what they mean in their usual acceptance. In particular, this aggregate demand and aggregate supply are not independent of each other, because the component demands 'for the output of any industry (or firm or individual) comes from the supplies of all the other industries (or firms or individuals)' and therefore will in most cases increase (in real terms) if these supplies increase and decrease if these supplies decrease. This is the proposition which (like Lerner) I call Say's Law and which I believe renders Say's fundamental meaning....

... It avers correctly that crises can never be causally explained solely by everybody's having produced too much. Finally, the law, at least by implication, amounts to a recognition of the general interdependence of economic quantities and of the equilibrating mechanism by which they determine one another, and therefore has a place -- as have other contributions of Say's (sic) -- in the history of the emergence of the concept of general equilibrium.13

Say's point is best illustrated by an example of an economy of "simple commodity production," i.e., wherein all producers are self-employed. Such an economy is not far removed from the world of Adam Smith when the process of the accumulation of capital was just getting underway. In such a society, consider what happens when the producers all increase their production, and for simplicity's sake assume that there are but three commodities -- food, clothing, and shelter.14 In this case, clearly the consumption of the producers and sellers of the
commodities will increase, either for purposes of their own comfort or for purposes of increasing future production of their commodity. The producer of food will not wish to consume the increased increment of food and will exchange it for clothing and shelter in the form of either greater quantity or better quality. Thus, since the increased production is intended for sale, it results in an increased demand for the other goods where production has also been increased, and no "realization problem" results.

Notice that as we introduce additional kinds of commodities, no problems arise. Thus, adding entertainment to the list of commodities merely expands the alternatives available to those producers who are, as a result of their increased production, increasing their consumption. Of course, if no one wants to purchase the new commodity, there will be overproduction in that realm and the producers of that commodity may face a realization crisis, but the laws of supply and demand will mitigate even this situation; the lack of demand will lower the price of the new commodity, which will increase the demand and consequently the sales, although at a lower margin (and perhaps even at a loss) for the producers. And apart from this mitigating effect, the misallocation of resources in that one area of production should not result in overproduction in the economy in general since the producers of the other commodities will simply increase their purchases elsewhere and leave a glut only in the areas where there has been a misallocation.

This particular application of Say's Law is successful, and although Marx does not discuss Say's Law in connection with a simple commodity production economy and all of his remarks concerning Say's Law are disparaging, he has no grounds for faulting it. The main reason why resources in such a society would tend to be fully employed is due to its rather equal distribution of incomes relative to the far more concentrated economy which has developed under capitalism. In a highly concentrated economy, the funds for investment are held by a relatively few individuals. Modern economics has recognized that the unemployment problem is the result of an imbalance between savings and investment; investment funds are accumulating in the hands of investors in the form of savings, but are not being spent. This leads to a deficiency of demand in the economy which eventually becomes so bad that it develops into a collapse and depression ensues. The decision of each large investor -- and the twentieth century investor is today often an unbelievably huge institution -- by itself has a significant impact upon the market, a situation which is inconceivable under simply commodity production. Furthermore, under modern capitalism, the small number of investors means that investors are inclined to speculate about one another's future behavior. A "crisis of confidence" by a few investors is more likely to be known to other investors who will react by following suit and withholding their own funds from investment. Under simple commodity production, the effect of each investor -- i.e., of each worker in the society who has a surplus after purchasing her/his means of subsistence -- is effectively zero. It is likely that at any time, quite a large number of individuals would be withholding these surplus
funds from circulation, but this would not have much impact, if any. And other investors would not be worrying about the impact of those who were withholding their funds and hoarding, so the crisis of confidence effect would not occur.

This comparison of modern capitalism with simple commodity production demonstrates clearly that whether a free enterprise economy obeys Say's Law is importantly related to the institutional structure of the economy in question. To have noticed the importance of such institutional factors in economic explanations accounts in large part for the genius of Marx. The classics were aware of such considerations to some degree; Ricardo, as we have seen, emphasized that "in different stages of society, the proportions of the whole produce of the earth which will be allotted to each of [the] classes... will be essentially different" and that "to determine the laws which regulate this distribution, is the principal problem in Political Economy." Neither he nor Say, Mill, or the other classical economists, however, recognized the distinction between simple commodity production and developed capitalism (where labor power is a commodity and workers are thus no longer entrepreneurs of finished products) as essential to the explanation of crises. In Marx, on the other hand, this distinction is of the essence; "Marxian economics is distinguished by making the specification of this additional institutional datum the very corner-stone of its analysis, thus discovering the clue to the peculiarity of the Capitalist system by which it differs from other forms of exchange-economy." And in neo-classical theory, the question of institutional factors is suppressed altogether, resulting in an even more barren theory for purposes of discussing business cycles. We shall examine more closely the shortcomings of the neo-classical theory in this regard in the next section; for now, let us continue with our discussion of Say's Law in classical theory.

The classical economists' neglect of the distinction between a capitalist and a simple commodity production economy was, in their time, acceptable because the gigantic monopolistic firms did not develop until the latter part of the nineteenth century and the assumption of perfect competition (which is closely related to the notion of a simple commodity production economy) made perfectly good sense at the time. Furthermore, the laissez-faire solution to the problem of crises which Say had recommended worked throughout the nineteenth century, and this fact naturally seemed more relevant than the phenomenon that as the century went on, the crises became worse. Certainly, no nineteenth century economist proposed a better alternative policy toward the problem than did Say, and this was sufficient to ensure its ongoing success.

The recurrence of the business cycle was nevertheless a problem which increasingly pressed itself upon economists as the nineteenth century progressed, and the phenomenon received ever more attention from even those economists who continued to adhere to Say's Law. John Stuart Mill is not prepared to surrender Say's Law and says, "the point is fundamental; any difference of opinion on it involves radically different conceptions of Political Economy, especially in its practical
aspects." He nevertheless recognizes the problem posed by the recurrence of crises and is "the one classical author who gave a really lucid presentation of the problem." Mill is the first to distinguish two interpretations of Say's Law, Say's Identity and Say's Equality. The former identifies supply with demand, and thus asserts the logical impossibility of an imbalance between the two. Mill indicates that this can be true "only for accounting money in a barter-type economy," and distinguishes this case from an economy where money is itself a commodity.

In order to render the argument for the impossibility of an excess of all commodities applicable to the case in which a circulating medium is employed money must itself be considered as a commodity. It must undoubtedly be admitted that there cannot be an excess of all other commodities and an excess of money at the same time. He then explains crises as a situation characterized by an excess demand for money.

... it may very well occur, that there may be, at some given time, a very general inclination to sell with as little delay as possible, accompanied with a general inclination to defer all purchases as long as possible (an excess demand for money). This is always actually the case in those periods which are described as periods of general excess. And no one, after sufficient explanation, will contest the possibility of general excess, in this sense of the word.

Mill's account became the accepted view for the remainder of the nineteenth century among capitalist economists. Marshall merely echoed Mill and said, "though men have the power to purchase they may not choose to use it;" his entire discussion of the principle took one paragraph, and he took Say's Law as an axiom of economics. And so long as economic theory viewed Say's Law in this way, a penetrating account of the business cycle eluded it.

... it occurred to many observers from the 1820's on -- among whom, not much to their credit, the scientific leaders of the profession were not conspicuous -- that crises are but phases in a more fundamental wavelike movement and cannot be relaly understood except within this broader setting. From the first, writers used the term 'cycle' or 'commercial cycle' in order to denote the units of this movement.... Observe that there is no relation between this work and the earlier discussions on gluts. It grew up independently and owes little if anything to the general economics of the epoch. Its authors stood
to the professed economists on a footing of cool and reciprocated indifference. Yet one should think that each group might have derived help from the other.  

Thus, Mill's observation that deficiencies of demand can occur in an economy where money is a commodity represents an advance over Say's ambiguous description of the principle that bears his name, but Mill does not explain why there should be an excess demand for money. Nor did Marshall provide such an explanation, and indeed, no such account is to be found in nineteenth century theory. The economists simply assumed that whatever caused the excess demand for money, the problem would soon be corrected by the free enterprise economy.

Of course, there is no reason why the mere fact that depressions and crises are but temporary disturbances should prevent economists from wondering why these disturbances occur, and we can only say that the reason must have been the confidence inspired by Say's Law which made the question seem less crucial. In England, Tooke and Overstone were leaders of cycle research during the 1830's, but Schumpeter points out that "neither made any conscious attempt to associate with his phases general characteristics that would have produced a standard picture of the cycle." Furthermore, those economists who attacked Say's Law -- e.g., Malthus, Sismondi, and Chalmers -- made little headway and Mill says that their argument "involves so much inconsistency in its very conception, that I feel considerable difficulty in giving any statement of it."  

Marx, on the other hand, mounted a brilliant, if premature, attack on Say's Law. His true genius was evident less in his analysis of contemporary events than in his ability to anticipate the future development of the system; from the perspective of the classical economists, Say's Law made perfectly good sense as a description of their world and provided some relevant answers to questions about crises. Schumpeter says:

The facts about crises that the press and the public notice and to which they naturally attribute such effects as bankruptcies and unemployment are the collapse of credit and the unsalability of commodities; press and public are inveterate adherents of monetary and overproduction 'theories'. It was against the popular ideas of the latter kind that J.B. Say argued in his chapter on the 'Law of Markets.'... [He showed] that, however large the phenomenon of overproduction may loom in the historical picture of individual crises, no causal explanation may be derived from it: there is no sense in saying that there is a crisis because too much has been produced all around.  

This world was one where free trade and peace prevailed, and where each commercial crisis was followed by a resurgence of the economy.
Laissez-faire worked in practice, and this endured the survival of Say's law as the theoretical foundation of the policy of laissez-faire; so long as the latter succeeded there could be no successful challenge to the former. By the last quarter of the nineteenth century, however, the problems of the business cycle had become more acute, and the easy confidence in Say's Law which had characterized the earlier years of the century was shaken. These problems elicited two responses, each from a different group of economic thinkers; on the one hand, we find the development of neo-classical economics giving a new formulation to Say's Law, and on the other hand, more attention being paid to the analysis of the business cycle. We turn now to these later developments.

Neo-Classical Theory and Say's Law: 1870-1930

I explained in the last chapter that neo-classical economics developed in response to a number of problems in the nineteenth century, including the revolutionary implications which Marx and others had drawn from the labor theory of value, the growth of cartels and huge firms capable of controlling their markets and threatening smaller competitors as never before, and the increasingly important problem of crises and gluts. The neo-classical element that supplies the solution to the latter problem, which presently concerns us, is the development of equilibrium theory, "the conception of an economic cosmos that consists of a system of interdependent quantities [being] fully worked out with all its problems, if not quite satisfactorily solved, at least clearly arrayed and with the idea of a general equilibrium between these quantities clearly established in the center of pure theory." The connection between the neo-classical theory and Say's Law has been widely recognized, and we need not dwell at length on the grounds for the connection. It can be seen most clearly in two aspects of the theory which, taken together, indicate why Say's Law is central to the system: the notion of an equilibrium tendency in the system, and the principle of scarcity.

Neo-classical theory assumed that the fundamental problem of economics is the allocation of scarce resources among limitless wants. This conception of the economic system assumes that there are not enough resources available to satisfy human wants and thus that those resources that are available will be fully employed. Given the assumption of scarce resources, the only employment problems would have to result from a misallocation of resources into areas where there is no demand rather than areas where there is unsatisfied demand, and this allocation problem was in fact what the neo-classical writers set out to solve with their equilibrium system. Free enterprise under competitive conditions will, they held, allocate resources properly and so avoid this problem. Again, there might be temporary disturbances, and of course, the neo-classics hardly meant to deny the actual facts of depressions; but the important point is that the system would automatically correct the problem. The neo-classical theory no less than the classical theory made the cornerstone of economic policy a system of laissez-faire with the theoretical
The neo-classical theory's difficulty in accounting for depressions which refuse to disappear quickly is magnified by the static nature of the theory. Since the neo-classical theory can discuss the economy only in the short-run—indeed, the theory can employ only the present tense — the persistence of depressions over time must be especially troubling to the theory; the theory assumes, after all, that disequilibrium will give way to equilibrium (and full employment) in the short-run. This resulted in a highly unrealistic theory. Leon Walras, for example, produced perhaps the most formally impressive theory of the early neo-classical writers, but his view of inventory adjustments was extremely naive.

... we observe when going over Walras' list of assets that very considerable emphasis is placed upon stocks or inventories.... Since the existence of these inventories presupposes a certain past behavior of the people concerned and since their current reproduction presupposes certain expectations, the system -- even if perfectly stationary -- still depicts a process in time and might therefore be called 'implicitly dynamic.' If Walras did not feel like this and if we agree with him in calling it static, this is only because of a device that was perhaps justified by the purpose of exhibiting the logical skeleton of economic life but is highly artificial all the same: he tried to build up an equilibrium state ab ovo in the manner in which it would be built if smooth and instantaneous adaptation of all existing goods and processes, to the conditions obtaining at the moment, were feasible.

It is indeed ironic that this "Great Theory" of economics was from the first a poor account of the actual functioning of Western capitalist economies. The year 1873 brought not only the publication of Jevon's important neo-classical work, the Theory of Political Economy, but also the onset of the Great Depression which lasted until 1898. Although "the period... was again one of rapid economic development[,]... until almost the end of the century expansion in physical output was accompanied by falling prices, unemployment of labor, and business losses. The spells of 'prosperity' were shorter and weaker than were the 'depressions'." The period following the conclusion of this extended depression climaxed in World War I, followed by an uneasy peace, an even more severe depression, and World War II. No theoretical system, however logically elegant, could survive the counter examples which confronted neo-classical theory from its very inception. The theory postulated free trade and peace, full employment and efficient allocation of resources, and free and perfect competition; the world exhibited protectionism and strife, unemployment and inefficient use of resources, and the growth of cartels and trusts.
The combined weight of these empirical problems precipitated a major crisis in neo-classical economic theory only one-half century after its development. The Great Theory which Jevons, Menger, Walras, and their followers had developed in the 1870's, "the theory of general, perfectly competitive, full-employment stationary (or better, timeless) equilibrium" that had "seemed to need no corroborative evidence from observation" now came under attack from a variety of angles. The wide variety of issues which this crisis raised has been summarized nicely by G.L.S. Shackle in his discussion of "Economic Hard Times and the Riches of Ideas," and we need not discuss all of the problems which finally came to trouble economists. Again, the problem that remains most important for our purposes is Say's Law.

The empirical problems which the historical development of capitalism posed for economic theory are clear enough and need little exposition here. An enormous growth in civilization's ability to produce wealth was accompanied by economic stagnation and depression, giving at least prima facie corroboration for Marx's claim of a contradiction between the forces and relations of production under capitalism. World War I marked the definitive end to a period that has been called "the hundred years' peace" and belied the implicit harmony of a laissez-faire system which assumed that competition and free trade would benefit all and thus ensure peace. These problems -- and particularly the problem of depressions -- could not help but have an impact upon economics, and the impact was felt both in the realm of business cycle research and in the interpretation of Say's Law.

As the nineteenth century wore on, business cycle research increased, although again "the scientific leaders of the profession were not conspicuous," yet another sign of the inability of the prevailing theory to say much of interest about the real world. Of the three most prominent originators of neo-classical theory, only Jevons contributed a discussion of business cycles, and although he showed an awareness of the phenomenon he is best known for his causal theory that they are produced by sunspots -- hardly the sort of account that lends itself well to economic analysis. The absence of the scientific leaders of the profession is due to their view that crises are but temporary deviations from the norm of full-employment equilibrium. Schumpeter points out that it was "the spectacular phenomenon of 'crises' and the less spectacular but still more irritating phenomenon of depressions ('gluts') which, in the preceding period, first attracted the attention of economists.... Nevertheless, it was only during the period under survey that the 'cycle' definitively ousted the 'crisis' from its place in economists' minds and that the ground was cleared for the development of modern business-cycle analysis." The definitive work of the early stages of this work was not by an English economist but by a German doctor, Clement Juglar. Juglar, the first student of the problem to use time-series material on prices, interest rates, central bank balances, also developed a morphology of cycles in terms of phases of upgrade, explosion, liquidation and attempted an explanation of the phenomenon -- "The only cause of depression is prosperity." Schumpeter remarks that
"this means that depressions are nothing but adaptations of the economic system to the situations created by the preceding prosperities and that, in consequence, the basic problem of cycle analysis reduces to the question what is it that causes prosperities -- to which he failed, however, to give any satisfactory answer."\(^{40}\)

Juglar was followed by Arthur Spiethoff, another little known figure who greatly influenced Schumpeter. Schumpeter remarks that he and Spiethoff agree on a number of important features of cycles,\(^{41}\) and after listing them adds, "So far, I should only have to add one thing, that capital investment is not distributed evenly in time but appears en masse at intervals. This is obviously a very fundamental fact, and for this I offer an explanation not offered by Spiethoff."\(^{42}\) Schumpeter here calls our attention to the circumstance that ends the boom and brings depression. "For Spiethoff, this circumstance is the overproduction of capital goods relative on the one hand to the existing capital and on the other hand to the effective demand. As a description of the actual facts I could also accept this. But while Spiethoff's theory stops at this element and tries to make us understand what circumstances induce the producers of building materials, and so forth periodically to produce more than their markets are capable of absorbing at the time," Schumpeter explains this in terms of the "effect of the appearance of new entrepreneurs en masse upon the established economic situation," keeping in mind that "as a rule the new does not grow out of the old but appears alongside of it and eliminates it competitively."\(^{43}\)

Schumpeter later came to refer to this as "the process of creative destruction," where he said of it,

\begin{quote}
The essential point to grasp is that in dealing with capitalism we are dealing with an evolutionary process. It may seem strange that anyone can fail to see so obvious a fact which moreover was long ago emphasized by Karl Marx. Yet that fragmentary analysis which yields the bulk of our propositions about the functioning of modern capitalism persistently neglects it.\(^{44}\)
\end{quote}

He clearly directs this last sentence at the neo-classics, who consistently failed to produce any interesting empirical analysis of actual economies. While the established economic theory, particularly in England and America, rested comfortably with Say's Law, such outsiders as Juglar and Spiethoff were laying the foundations of the attack on that principle. The period we are now discussing, Schumpeter points out,

\begin{quote}
... established a method, at least the fundamental principle of a method, on which, by the end of the period, a majority of business-cycle analysts agreed and which was to serve the bulk of the work of our own time. Agreement went further than this however. By the end of the period the lists of the features or
symptoms that characterize cyclical phases... looked alike. And not only that: by the end of the period most workers agreed -- or took tactically for granted -- that the fundamental fact about cyclical fluctuations was the characteristic fluctuation in the production of plant and equipment.\textsuperscript{45}

The insight about the importance of investment in plant and equipment was lost on most of the neo-classical writers whose approaches were often of the sort that,

besides being suggested by untutored observation, were bound to appeal to economists who had developed economic statics as the centerpiece of their science. As we have seen above, they naturally exaggerated the importance of their central achievement. They saw more in it than we do, that is, more than a logical schema that is useful for clearing up certain equilibrium relations but is not directly applicable to the given processes of real life.... Now, from the standpoint of this type of analysis, it is natural to locate the 'causes' of observed disturbances either outside of the economic system or in the fact that the economic engine, like any engine, never works with precision.\textsuperscript{46}

Thus, we find that the "neo-classical period" produced a theory of exchange with arresting logical beauty and little (if any) empirical content, and the beginnings of interest in the business cycle as the basic form of economic life under capitalism without attaining a successful theoretical assault on Say's Law. The period also produced the theoreticians who would finally mount the successful theoretical assault -- Schumpeter in Austria, Keynes in England, Kalecki and Lange in Poland, among others. As the neo-classical period drew to a close with the start of World War I, the distance which economics was moving away from an easy acceptance of Say's Law and the Grand Theory which employed it was apparent in Schumpeter's discussion of the business cycle in \textit{The Theory of Economic Development}, first published in 1911.

It is a fact that the economic system does not move along continually and smoothly. Counter-movements, setbacks, incidents of the most various kinds, occur which obstruct the path of development; there are breakdowns in the economic value system which interrupt it.... It is impossible, practically at all events if not logically, to abstract from this class of phenomena.... The counter-movements do not merely obstruct development, they put an end to it. A great many values are annihilated; the fundamental conditions and presuppositions of the plans of the leading men in the economic system are changed. The economic
system needs rallying before it can go forward again; its value system needs reorganizing. And the development which then starts again is a new one, not simply the continuation of the old.... Entrepreneurs cannot skip the setback phase and carry their plans over intact into the next phase of development, and scientific explanation cannot do so either without completely losing touch with the facts.47

The Keynesian Revolution

We have seen that by the beginning of the Twentieth Century, concern about the consequences and causes of the business cycle had pushed that problem to the forefront of economic study and research. The concerns of economists went beyond this problem, to be sure, but it was clearly the most important problem and the one which gave rise to the "years of high theory."

It is impossible to understand this development if we interpret it simply as an autonomous intellectual development. It must be seen more broadly as the result of historical forces which altered the outlook of the ruling business class; by the turn of the century, "its serene confidence in the virtues of laissez-faire was gone and its good conscience was going. Hostile forces were slowly gathering with which it had to compromise."48 This confidence had not been closely associated with Say's Law, which assured an economic optimum as a result of laissez-faire policy, and the Law was called into question as economic downturns and unemployment seemed less to be temporary deviations from the norm and more to be the norm itself.

In addition to the business cycle theorists discussed above, new figures entered the assault on Say's Law, including Aftalion in France, J.M. Clark in the United States, D.H. Robertson in England, the Marxist Tugan-Baranowsky in pre-revolutionary Russia, and Wicksell in Sweden. The net result of their work was to further draw attention to the question of Say's Law, but they failed to consummate their attack. The rulers and theoreticians of Western civilization managed to convince themselves that even so cataclysmic an event as World War I was but an accident and after the war set about restoring the old order. It was, however, an attempt that was doomed to failure, as Keynes pointed out brilliantly in "The Treaty of Peace."49

Keynes' analysis of the problems was not, however, widely accepted until after the Great Depression of 1930, and Say's Law continued to reign in economic theory through the first three decades of this century. In England, the bastion of capitalist economic theory, the chief defender of the established orthodoxy was A.C. Pigou, whose Industrial Fluctuations was a response to the questions about Say's Law. Pigou saw two mechanisms in the capitalist free enterprise economy which would solve employment and cyclical problems: flexible interest
rates and flexible wages. Since Pigou's theory "was, and still remains, the most important challenge to the Keynesian thinking" (outside of Marxism), I shall explicate it in some detail.

I should note, to begin with, that Pigou's account of Say's Law is not that of Say, Mill, or Marshall; it is a version of the basic principle that is modified and expanded to apply to a rather developed capitalist economy, and in fact, Pigou himself never specifically mentioned Say's Law. Specific references to Say's Law aside, however, it is clear that Pigou adhered to the fundamental principle that a laissez-faire system which is allowed to function freely will generate a full-employment equilibrium. In Industrial Fluctuations, published in 1927 (before the Great Depression), for example, he says that "if the wage-rate is perfectly plastic, the alteration in the quantity of labor at work will be nil," and even in 1933 he continued to blame the unemploy­

The idea behind this can be stated shortly. Unemployment and slumps occur when there is a deficiency of demand for products. The simplest way to increase demand is to lower prices, but lower prices are possible only if costs are cut. Now in a slump, it should be easy to cut costs since there is a surplus of productive resources and thus a large supply relative to demand. In the case of labor, there are a lot of unemployed workers seeking work, which should result in lower wages. The unhindered operation of this mechanism should, then, bring lower costs, followed by lower prices and increased demand for goods and economic recovery. The failure of wages to come down is thus seen as the cause of the continuing slump, with labor unions as the culprit. Unions, on this account, represent monopoly in the labor market and prevent supply and demand from adjusting the price of labor to its proper level. But for this, Pigou and his followers maintained, the depression would be brought to an end by market forces. This argument was, as must be obvious, the theoretical justification for union-busting in the early decades of the Twentieth Century.

This was by far the greatest crisis to confront economic theory, incomparably greater than the crisis of the 1870's. First of all, the crisis facing society was much more serious; not only was the economic depression worse, but the total breakdown of liberal capitalist society was threatening Europe, a threat which was not yet appreciated fully but was nevertheless a matter of considerable concern by 1933. Furthermore, unlike the "marginal revolution" of the 1870's which had solidified the standing of Say's Law in economics and laissez-faire in economic practice, the new crisis called them into question. This practical implication gave the new theoretical questions a far greater importance than the crisis of the 1870's.

The outcome of the crisis was the collapse of Say's Law and the triumph of Keynesianism. The latter description is that most commonly used by economists today (or, at least, until recently), and there is a
sense in which I should agree with it, but it is also an oversimplification in that it under-emphasizes the collective effort behind the defeat of say's Law. And it is significant that the other major figure in this effort was a Polish Marxist, Michal Kalecki. Keynes was, however, the leader of the revolt in two important senses. First, he was the acknowledged leader of the group, and other participants looked upon him as their leading figure — even before the publication of The General Theory of Employment, Interest, and Money. Second, it was he who developed the solution of supplementing government monetary policy with fiscal policy within a comprehensive theoretical framework, and for the first time provided a theoretical rationale for the policy of deficit spending by government.

Let us leave aside, for the time being, Keynes' solution to the problem of depression and focus upon his criticism of Say's Law. Keynes' impact here was felt most strongly in his attack on the Pigovian analysis of the role of wage adjustments on the level of employment, an impact summed up well by Pigou himself just a year after the publication of Keynes' General Theory: "Until recently no economist doubted that an all-round reduction in the rate of money wages might be expected to increase, and an all-round enhancement to diminish, the volume of employment."55

This argument was crucial for two reasons. First of all, Keynes provided the theoretical defense for labor unions and collective bargaining against the forces of reaction. Opponents of unions — many of whom were, ironically, the largest monopolistic firms — accused labor unions of interfering with the "natural" economic process and prolonging the depression by keeping wages abnormally high. Against this, Keynes argued that high wages were not behind the continuing slump. Second, as a result of the former, Keynes finally forced orthodox economics to see that depressions are not the result of the improper functioning of the economic system, but are a natural outgrowth of the modern capitalist system and a product of its institutional structure.

The first of these was obviously important, but from our present point of view, the second is more fundamental. In 1984, the policy being put into practice in American politics is based upon a retreat from Keynesian theory and a return to the belief that a laissez-faire system, with less government interference, will tend towards full employment. The only unemployment will be "frictional" (as when workers are between jobs) or voluntary (where workers refuse to work), which is precisely the view which Keynes sets out to attack in discussing "the postulates of the classical economics" in Chapter Two of The General Theory.56

Now it is important to emphasize that Keynes' theoretical attack on Say's Law must be distinguished from his "solution" of government fiscal policies which present day conservatives call "Keynesianism" and which has today largely fallen out of favor with the general public. Here we find the link between Keynes and Marx; if Keynes' critique of the laissez-faire model is true, while the solution of government
spending policies to stabilize the economy is indeed ineffective or even positively harmful, then one is hard put to explain how the capitalist economic system can continue to function and survive. Those who today recommend a rejection of Keynesian fiscal policies, however, do not bother to re-examine Keynes' critique of Say's Law. They simply reject the policies of Keynesianism and conclude that what is needed is a return to the "wisdom" of the old days of laissez-faire. The conservatives of today advocate, in effect, a return to the economics of Pigou.

In his criticism of the postulates of the "classical economics" which relied upon Say's Law, Keynes begins with an observation which raises immediate problems for the orthodox theory and Say's Law: "...the population generally is seldom doing as much work as it would like to do on the basis of the current wage. For, admittedly, more labour would, as a rule, be forthcoming at the existing money-wage if it were demanded." The fact that more work is not demanded at the current money-wage indicates, according to the Pigovians, "that, while the demand for labour at the existing money-wage may be satisfied before everyone willing to work at this wage is employed, this situation is due to an open or tacit agreement amongst workers not to work for less, and that if labour as a whole would agree to a reduction of money-wages more employment would be forthcoming." Keynes raises two objections to this view. The first is empirical:

... the contention that the unemployment which characterizes a depression is due to a refusal by labour to accept a reduction of money-wages is not clearly supported by facts. It is not very plausible to assert that unemployment in the United States in 1932 was due either to labour obstinately refusing to accept a reduction of money-wages or to its obstinately demanding a real wage beyond what the productivity of the economic machine was capable of furnishing.... Labour is not more truculent in the depression than in the boom -- far from it. Nor is its physical productivity less. These facts from experience are a prima facie ground for questioning the adequacy of the classical analysis.

Keynes goes on to show that the contrary view rests on a confusion between the relationship between money wages and real wages, an argument which I shall not discuss in detail. Keynes goes on to discuss "a more fundamental objection" to the then-orthodox analysis. "The traditional theory maintains... that the wage bargains between the entrepreneurs and the workers determines the real wage." This, Keynes points out, is not only questionable, but indeed is inconsistent with the prevailing theory. Hence, Keynes argues, "there... exist[s] no expedient by which labour as a whole can reduce its real wage to a given figure by making revised money bargains with the entrepreneurs.... We argue that there has been a fundamental misunderstanding of how in this respect the economy in which we live actually works."
This brings Keynes to an explicit discussion of Say's Law. The essence of his argument is that wages, far from being the independent variable, are in fact the dependent variable; in other words, the result of wage bargaining is not a cause of business cycles, but an effect. The cause is instead the state of effective demand in the economy as a whole. His discussion of Say's Law shows that the law, which holds "that the costs of output are always covered in the aggregate by the sale-proceeds resulting from demand, has great plausibility, because it is difficult to distinguish it from another, similar-looking proposition which is indubitable, namely that the income derived in the aggregate by all the elements in the community concerned in a productive activity necessarily has a value exactly equal to the value of the output."64

Those who think in this way are deceived, nevertheless, by an optical illusion, which makes two essentially different activities appear to be the same. They are fallaciously supposing that there is a nexus which unites decisions to abstain from present consumption with decisions to provide for future consumption; whereas the motives which determine the latter are not linked in any simple way with the motives which determine the former.65

Keynes develops this argument in Chapter Three of The General Theory, "The Principle of Effective Demand." The key element is the level of investment, which must match the level of savings in order to assure full employment and which does not do so automatically. Keynes states that the problem is due to the dependence of investment upon entrepreneurs' expectations of profit. Since not all income is spent on consumption, the remainder must be invested. If some significant portion of the national income is neither spent on consumption nor spent on investment, then a corresponding portion of the product of the economy will not be purchased. The effective demand for products, in other words, will not be sufficient to buy up the total product, causing a fall in prices and thus a failure by entrepreneurs to sell at cost covering prices. Business losses will mount, leading to increased inventories and layoffs, which further compound the problem by causing additional declines in effective demand. Thus, "the effective demand associated with full employment is a special case, only realised when the propensity to consume and the inducement to invest stand in a particular relationship to one another."66

The completion of the argument takes the remainder of the book. It is not necessary for our purposes to review it in detail, and I should instead suggest that the interested reader examine the argument first hand. Keynes' book is not, incidentally, nearly as difficult as many commentators have suggested provided that one has a bit of familiarity with the background against which Keynes wrote, and readers of this essay should be able to work through it with the aid of a bit of patience. But more important for the present argument than Keynes' complete explanation is his conclusion that since there is no assurance
that there will be sufficient demand for investment goods to ensure the sale of the entire product of the economy, "the economic system may find itself in stable equilibrium... at a level below full employment,"67 and the consequences of this result.

Keynes points out that "this analysis supplies us with an explanation of the paradox of poverty in the midst of plenty,"68 and that "moreover the richer the community, the wider will tend to be the gap between its actual and its potential production; and therefore the more obvious and outrageous the defects of the economic system. For a poor community will be prone to consume by far the greater part of its output, so that a very modest measure of investment will be sufficient to provide full employment; whereas a wealthy community will have to discover much ampler opportunities for investment if the saving propensities of its wealthier members are to be compatible with the employment of its poorer members.... But worse still. Not only is the marginal propensity to consume weaker in a wealthy community, but, owing to its accumulation of capital being already larger, the opportunities for further investment are less attractive unless the rate of interest falls at a sufficiently rapid rate,"69 something which Keynes maintains will not automatically occur. Keynes sums up the results of Book One of The General Theory as follows: "It may well be that the classical theory represents the way in which we should like our Economy to behave. But to assume that it actually does so is to assume our difficulties away."70

This is, in spite of Keynes' disparaging comments regarding Marx, "back to Marx with a vengeance."71 The major difference between Keynes and Marx is, of course, that Keynes maintained that the instability of the system could be controlled if people would recognize the need to interfere with the economy and reject laissez-faire, whereas Marx did not consider this possibility. One can, however, distinguish Keynes' critique of laissez-faire from his proposed solution, and when we do so and limit our attention to the former, the argument is entirely compatible with Marx's. This point has been made brilliantly, I believe, by Joan Robinson in "Marx and Keynes," where she indicates in the course of the argument that "Keynes' main achievement was in a sense negative (though it has many positive consequences both for theory and for policy). It was to show that there is no automatic self-righting mechanism tending to establish full employment in an unplanned private-enterprise economy."72

Joan Robinson wrote this thirteen years after Keynes finished writing The General Theory, but the similarities between Marx and Keynes became obvious almost immediately. In 1937, The Review of Economic Studies published three important articles related to our theme, Henry Smith's "Marx and the Trade Cycle," Michal Kalecki's "A Theory of the Business Cycle," and Oskar Lange's "On the Economic Theory of Socialism." The remainder of this chapter is devoted to an assessment of the first two of these articles, and the next chapter will focus on Lange's theory. Although developed and written independently, these three essays represent collectively an important and unrecognized landmark in
the history of economic theory.

Marxian Cycle Theory Updated: Smith and Kalecki

Keynes put a distance between his theory and that of Marx in three ways. First, he links Marxism with a Russian application which he finds detestable: "Even if we need a religion, how can we find it in the rabid rubbish of the Red bookshops? It is hard for an educated, decent, intelligent son of Western Europe to find his ideals here, unless he has first suffered some strange and horrid process of conversion which has changed all his values."73 Second, he refers to Capital as "a "an obsolete economic textbook which I know to be not only scientifically erroneous but without interest or application for the modern world."74 And finally, Keynes' proposals for attaining a higher level of employment offer an alternative scenario to the Marxian prediction of an unsolvable crisis leading to revolution.

Henry Smith's little-known paper, "Marx and the Trade Cycle," provides the answer of the second of Keynes' charges against Marxism. Smith clarifies the relationship between Marx's economics and the new analysis of investment that was becoming the dominant view in the 'thirties in a paper that Schumpeter has called "the best analysis of Marx's own views that I know of."75 The paper is valuable for its treatment of three important issues in contemporary Marxism. In addition to indicating the similarity between Marx's account of cycles and the new theories of effective demand, Smith shows the error of attributing to Marx an account of cycles based on underconsumption by workers and establishes the relative independence of Marx's cycle theory from the labor theory of value.

Let us begin with the underconsumption theory, the view that "consumers' demand cannot keep pace with supply because wages only form part of the value of output."76 This is a view that has been frequently attributed to Marx by both Marxists and non-Marxists alike. I accepted this interpretation myself when I first read Marx, and indeed, one can find in Marx's writings evidence for something like this view.77 Furthermore, there is no doubt that a deficiency of demand by workers for consumption goods and services is associated with depression and plays a role in the explanation of the latter, as even Keynes indicates.78 Nevertheless, to rely upon underconsumption as the fundamental cause of depression "completely overlooks the fact that the production of capital goods is a source of income, and that therefore an increase in the proportion of the national income saved need not lead to disequilibrium provided that it be invested."79 The problem is, in other words, not that workers' incomes are too low, but that the share of aggregate income that forms the surplus over workers' wages might not be spent on either consumption or investment.

Smith moves on to criticize the labor theory of value both as a theory of price and as a theory of exploitation. The discussion here
is, although interesting, not especially relevant to our present concerns. Even if one rejects Smith's criticisms of the labor theory of value, he provides a valuable service in showing that discussion of the business cycle need not involve discussion of the theory of value.

Smith's discussion draws upon Marx's texts to show this independence. I shall take a different approach and develop a point that Smith makes in the course of his argument. Once we reject underconsumption as the cause of crises, we see that the crucial issue concerns the behavior of capitalists. We can thus take exploitation as a given in our argument and move into discussion of what governs the capitalists' spending or saving of the surplus. Obviously, exploitation is the cause of the problem here, but our argument does not require that we explain this cause in order to employ it. We simply recognize that capitalists have control of a surplus of revenues over costs — i.e., a profit — and that unless this surplus is spent on investment, crises will ensue.

Having argued that Marx's cycle theory is independent of his value theory, Smith goes on to discuss the former. He accepts as an hypothesis Marx's thesis that capitalists are continually driven by an insatiable desire for accumulation and shows that "it is possible to select passages in Capital in which Marx argues directly from the 'automatic' accumulation of capital to economic disorganisation resultant on investment undertaken in the light of faulty anticipations of profit, without specifically basing his argument upon the theory of value or of surplus value." He then goes on to point out that, given Marx's fundamental assumption regarding the capitalists' behavior, his general argument is in accordance with the results which one would expect to follow from a "rate of accumulation" of a greater order of magnitude than the rate of technical progress. Thus, as a hypothesis, his theory of the trade cycle is at least deserving of attention: as equilibrium theory is powerless to explain anything except movements towards equilibrium, any theory of the trade cycle must partake of the nature of a hypothesis and therefore can only be formally judged upon its consistency as a theory.

Like any other theory of the trade cycle, however, this one finally depends upon its conformity to facts. However correct the logical sequence of an argument may be, upon application it stands or falls by the factual validity of its basis.

Smith was not a Marxist. Although he clearly respected Marx's insight, he also criticizes Marx's formulation of the argument and says that Marx at best "stumbled upon a valid and coherent theory of the business cycle." Nevertheless, his remarks about how Marx discovered his theory aside, Smith contributes to the defense of Marxism by underlining the relevance of Marx's argument to the situation of the
'thirties and by showing the superiority of Marx's theory to the neo-
classical theory of static equilibrium that had triumphed in the
"marginal revolution" some four decades previously. He offers an
excellent explication of Marx's argument in Capital and shows that
it contains the elements of the then-emerging theories of effective
demand and investment, and he rightly insists that the crucial question
concerns not value theory, but the cause of depression. Although
Smith does not address Keynes's criticism that Capital is an obsolete
economic textbook, his discussion of Marx's theory shows that it is
far less obsolete than the Marshallian tradition from which Keynes
was descended.

Kalecki's theory of the business cycle complements Smith's argu-
ment. Kalecki was a Marxist who left Poland in the shadow of Nazism.
While in Poland, he had developed a theory of effective demand and in-
vestment that was similar to the Keynesian theory, and he was received
warmly by Keynes when he arrived at Cambridge. It is not surprising
that Keynes, with his contempt for Marxism, should have appreciated
Kalecki's argument, for it is not stated in terms of the Marxian model
and the student of economics who has learned her/his lessons from
Capital is likely to find the argument unfamiliar. Kalecki opens "A
Theory of the Business Cycle" with a summary of his argument that reads
more like Keynes than Marx.

This paper, in which I attempt to give an analysis
of investment processes, is closely allied to the
Keynesian theory. The latter can be divided into two
parts: (1) the determination of short-period equilibrium
with a given capital equipment and with a given rate of
investment; (2) the determination of the rate of in-
vestment. In the section "Short-period Equilibrium"
I give a representation of the first part of the Keynes-
ian theory, arriving at its chief theorems in a slightly
different way. In the following three sections I deal
with the determination of the rate of investment and
there the results are fundamentally different from those
of the Keynesian theory. These divergences are due to
the important role played in my arguments by the time-lag
between the investment decisions and investment produc-
tion, and also to a different treatment of the last ques-
tion of the inducement to invest. In the last section
I show that the investment processes necessarily create
a business cycle.

Nevertheless, Kalecki's argument follows Marx's closely.
Kalecki assumes, like Marx, that workers receive a subsistence wage
and spend their entire incomes during a given period. This
sets up the problem as related to the share of total income that Marx
called the cause of the business cycle (as our examination of Smith
has shown.
Kalecki, however, develops a more refined theory of effective demand than Marx was able to produce in his final two unfinished volumes of *Capital*. This is doubtless due to a variety of factors. Kalecki first of all had the advantage of Marx's earlier work as a guide to the problem, whereas Marx himself had to work out the problem afresh. Also available to Kalecki but not Marx were new theoretical devices which allowed a more precise statement of the problems. For example, Kalecki's discussion of short-term equilibrium notes that "in every enterprise the employment is pushed to the point at which marginal revenue is equal to the prime cost." One could say that Marx recognized the failure of Say's Law and the implications of this problem for capitalism, but that Kalecki brought the problem into focus. Rather than follow the lead of many other Marxists and criticizing the use of marginal concepts in economics, Kalecki uses these concepts to formulate a theory of effective demand. Using these tools of marginal analysis, Kalecki develops the Marxian theory of crisis beyond the point which Marx attained with his more primitive theoretical tools.

Kalecki was also aware of the Keynesian proposal for solving the employment problems of modern capitalism. Since crises are due to a deficiency of effective demand for goods and services, it is natural to attempt to eliminate the problem by stimulating demand by giving income to those who would buy the goods and services in excess supply. Insofar as the excess supply consists of consumer goods that would be purchased by working class families—i.e., Chevrolets, smaller houses, food as opposed to Rolls Royces, mansions, and luxuries—this stimulation of effective demand must consist of increasing the incomes of working class people. To this extent, the problem of effective demand is clearly a result of the incredibly unequal distribution of income in capitalist society. Keynes did not emphasize the distributive effect on income in discussing his theory, although he recognized it. Indeed, even an early commentator such as J.M. Clark recognized the importance of the "undue concentration of incomes and probably a resulting tendency to oversaving." A more equal distribution of income "achieved mainly at the extent of reducing a volume of savings so swollen that a considerable part of it goes to waste... would be very nearly a clear gain." Kalecki's awareness of the class struggle that underlies the economic relations of capitalist society, however, gives him a superior understanding of the distributive effects of full employment policies and of the political implications of these policies.

It is surely an interesting commentary on contemporary capitalist theory that Kalecki became one of its important figures. The part of his work that gained influence, however, is his theory of long-run growth; his discussion of the prospects for the capitalist system was shoved aside and his concepts applied as if intended simply as an account of how the system is to work. Of course, the use of
a theory for purposes other than the author intended is in itself perfectly acceptable, but the nearly complete lack of discussion of Kalecki's views is nonetheless odd. This is especially so in light of the insight that Kalecki brings to events in his own time and today.

Kalecki's insight comes out most clearly in his "Political Aspects of Full Employment," but even in his discussion of effective demand and business cycles he ties the cause of the problem to the capitalist system.

We see that the question, "What causes the periodical crisis?" could be answered shortly: the fact that the investment is not only produced but also producing. Investment considered as capitalists' spending is the source of prosperity, and every increase of it improves business and stimulates a further rise of spending for investment. But at the same time investment is an addition to the capital equipment and right from birth it competes with the older generation of this equipment. The tragedy of investment is that it calls forth the crisis because it is useful. I do not wonder that many people consider this theory paradoxical. But it is not the theory which is paradoxical but its subject-- the capitalist economy.90

Kalecki, however, stops short of predicting the demise of the capitalist system. He is not optimistic about its prospects, but his skepticism is due not to the lack of economic solutions to the problem of unemployment, but to the political obstacles to their implementation. Regarding the economic solutions, he remarks that

a solid majority of economists is now of the opinion that, even in a capitalist system, full employment may be secured by a government spending programme, provided there is in existence adequate plant to employ all existing labour power and provided adequate supplies of necessary foreign raw materials may be obtained in exchange for exports.91

There is, however, a paradox present in that most economists are in this case opposed to the business leaders of society. Although they present a cure for a dangerous ailment, the cure is rejected by the patient. Kalecki's views here are sufficiently interesting and important to deserve extensive quotation. After clearly and concisely summarizing the new theory of full employment, Kalecki goes on to point out the source of opposition to it.
It should be first stated that although most economists are now agreed that full employment may be achieved by government spending, this was by no means the case even in the recent past. Among the opposers of this doctrine there were (and still are) prominent so-called "economic experts" closely connected with banking and industry. This suggests that there is a political background in the opposition to the full employment doctrine even though the arguments advanced are economic. That is not to say that people who advance them do not believe in their economics, poor though these are. But obstinate ignorance is usually a manifestation of underlying political motives.

There are, however even more direct indications that a first class political issue is at stake here. In the great depression in the thirties, big business opposed consistently experiments for increasing employment by government spending in all countries, except Nazi Germany. This was to be clearly seen in the USA (opposition to the New Deal), and France (Blum experiment) and also in Germany before Hitler. The attitude is not easy to explain. Clearly higher output and employment benefits not only workers, but entrepreneurs as well, because their profits rise. And the policy of full employment outlines above does not encroach upon profits because it does not involve any additional taxation. The entrepreneurs in the slump are longing for a boom; why do not they accept gladly the "synthetic" boom which the government is able to offer them? It is this difficult and fascinating question with which we intend to deal in this article.

The reasons for the opposition of the "industrial leaders" to full employment achieved by government spending may be subdivided into three categories: (a) the dislike of government interference in the problem of employment as such; (b) the dislike of the direction of government spending (public investment and subsidizing consumption); (c) dislike of the social and political changes resulting from the maintenance of full employment.

We thus confront the following scenario: The economists have finally understood the chronic tendency in the capitalist system to unemployment and stagnation and can propose a solution that will save capitalism. The capitalists oppose the program (confirming, incidentally, Marx's thesis that they are no more aware of the fall of the capitalist system than of the eventual fall of the earth into the sun.) The working class, however, suffering tragically from the unemployment
of the depression, succeed in acquiring sufficient political power to force through the reforms necessary to save the system that oppresses them. Paradoxical as this is, it is without a doubt an accurate description of the history of economic policy for the past half century.

Kalecki's insight does not stop here. He sees that the political power of the working class in a capitalist society is limited. It is the capitalists who are the ruling class, regardless of their willingness to allow working class participation in the system. The opposition of the capitalists to government spending on non-military items to stimulate consumption continues even after the victory of full employment policies. Writing in 1943, Kalecki already recognizes and criticizes a view proclaimed widely in the 1980's.

In the current discussions of these problems, there emerges time and again the conception of counteracting the slump by stimulating private investment. This may be done by lowering the rate of interest, by the reduction of income tax or by subsidizing private investment directly in this or another form. That such a scheme should be attractive to "business" is not surprising. The entrepreneur remains the medium through which the intervention is conducted. If he does not feel confidence in the political situation, he will not be bribed into investment. And the intervention does not involve the government either in "playing with" [public] investment or "wasting money" on subsidizing consumption. 93

Kalecki goes on to criticize the attempt to resolve the problem of the capitalist business cycle through the manipulation of the rate of interest. Two major problems emerge here. (1) "One reduction in the rate of interest does not, of course, eliminate the forces which cause cyclical fluctuations in a capitalist economy. Thus in not too remote a time the rate of interest would have to be negative and income tax would have to be replaced by an income subsidy." 94 (2) "The reaction of the entrepreneurs to the measures described is uncertain. If the downswing is sharp, they may take a very pessimistic view of the future and the reduction of the rate of interest or income tax may then for a long time have little or no effect upon investment." 95

Many advocates of the solution of stimulating private investment thus associate their solution with a certain amount of government investment. "They seem, however, still to be consistently opposed to creating employment by subsidizing consumption and to maintaining full employment." 96 He tentatively foresees a "political business cycle" for capitalist democracies.
This state of affairs is perhaps symptomatic of the future economic regime of capitalist democracies. In the slump, either under the pressure of the masses or even without it, public investment financed by borrowing will be undertaken to prevent large-scale unemployment. But if attempts are made to apply this method in order to maintain the high level of employment reached in the subsequent boom a strong opposition of "business leaders" is likely to be encountered. As has already been argued, lasting full employment is not at all to their liking. The workers would "get out of hand" and the "captains of industry" would be anxious to "teach them a lesson." Moreover, the price increase in the up-swing is to the disadvantage of small and big rentiers and makes them "boom tired".

In this situation a powerful block is likely to be formed between big business and the rentier interests and they would probably find more than one economist to declare that the situation was manifestly unsound. The pressure of all these forces, and in particular of big business— as a rule influential in government departments— would most probably induce the government to return to the orthodox policy of cutting down the budget deficit. A slump would follow in which government policy would come again into its own.

This pattern of a "political business cycle" is not entirely conjectural; something very much like that happened in the USA in 1937-38. The breakdown of the boom in the second half of 1937 was actually due to the drastic reduction of the budget deficit. On the other hand, in the acute slump that followed, the government promptly reverted to a spending policy.

This statement is a brilliant anticipation of policies now being pursued in England and America. Following Kalecki (and Keynes), we can expect that the boom that has characterized these economies so far in 1984 will culminate in another slump. At that point, either of two outcomes is possible. One would be a return to government spending policies (including consumption supports) to increase effective demand and end the slump. This would result if the public rejected the currently popular rhetoric about the ability of the private sector to increase spending on investment on its own, and if the public still had confidence in the role of government in the economy after the record of the past half century. Kalecki himself seems to have thought that the cycle could continue indefinitely, but he failed to take into account the possibility that the public might become disillusioned with the record of government spending and oppose that spending even in a slump.
We therefore cannot rule out the other possibility, i.e., that the opposition of the capitalists and rentiers might succeed even in a slump in preventing the implementation of full employment policies. Of course, as the slump deepens public opposition to neo-laissez-faire policies will build, but in the early stages of the slump the opposition to government spending policies would very likely hold out. Consequently, the slump would deepen and turn into a full-scale depression. It is difficult to say just how deep the depression would have to get before drastic action ensues, and even more difficult to predict what that action might be. I shall presently have more to say on this subject, but for now I simply leave the reader with one result of the last depression of which Kalecki was acutely aware, although it seems to be mostly forgotten today—the rise of fascism.

Kalecki points out that "one of the important functions of fascism, as typified by the Nazi system, was to remove the capitalist objections to full employment."

The dislike of government spending policy as such is overcome under fascism by the fact that the State machinery is under the direct control of a partnership of big business with fascist upstarts. The necessity for the myth of "sound finance", which served to prevent the government from offsetting a confidence crisis by spending, is removed. In a democracy one does not know what the next government will be like. Under fascism there is no next government.

Government spending under fascism concentrates on the development of the military forces. This succeeds in solving the problems of employment, and indeed employment becomes "overfull" and a shortage of labor prevails. Labor would thus have a bargaining advantage, but the fascists viciously break the unions and control wages. "The fascist system," Kalecki points out, "starts from the overcoming of employment, develops into an 'armament economy' of scarcity and ends inevitably in war."

Kalecki himself concludes that a return to fascism "seems extremely unlikely."
Fascism sprang up in Germany against a background of tremendous unemployment and maintained itself in power through securing full employment while capitalist democracy failed to do so. The fight of the progressive forces for full employment is at the same time a way of preventing the recurrence of fascism. 103

As I have already indicated, however, due to the disillusionment of so many people with the policies which Kalecki supported, the policies are not so progressive after all. Furthermore, to anyone familiar with these policies in practice, it is evident that they did not solve the social problems associated with involuntary unemployment. Rather they simply provided a few additional crumbs for those at the bottom of the economic pyramid. The problem of poverty in the midst of plenty remains. But the most devastating indictment of the government spending policies today is that they did not solve the problem of unemployment and economic stagnation. In the 1970's, following the overfull employment caused by increased military spending during a period of relatively full employment, the new economic problem of "stagflation"—economic stagnation accompanied by inflation—emerged. The failure of government spending to resolve the economic problems of capitalism again opens the door to the threat of fascism should the present situation lead to a prolonged slump.

Of course, the recurrence of a depression need not lead to fascism. A more hopeful outcome is that a turn to socialism would result, and I shall take up this question in the next chapter. For now, I want simply to indicate that there are grounds for supposing that another depression is entirely possible, particularly should the current policies associated with "supply side economics" continue.

Kalecki summed up his discussion of the "political aspects of full employment" by remarking that

"full employment capitalism" will have, or course, to develop new social and political institutions which will reflect the increased power of the working class. If capitalism can adjust itself to full employment a fundamental reform will have been incorporated in it. If not, it will show itself an outmoded system which must be scrapped. 104

There are today grounds for supposing that capitalism has not adjusted itself to full employment and that it is today an outmoded system. Kalecki departs from Marx in supposing that power in the hands of the working class is possible under capitalism. Today, however, the capitalist class is cutting deeply into working class gains of the past half century. For now, the business class's policies of
non-intervention in the economy seem to be working, as employment has risen and the level of investment has increased due to the capitalists' appreciation of again controlling economic policy. Their favored approach is, however, nothing more than a return to Say's Law, and based on the arguments in this chapter so far, one must be very skeptical about the prospects for the continued success of this program.

The problems looming on the horizon have not gone unrecognized by all economists. Among the critics of capitalism since Kalecki, Joan Robinson is perhaps the most important figure. One of Keynes' prize students, she published an important theoretical work even before the publication of the General Theory with The Economics of Imperfect Competition. She "began to read Capital just as one reads any book, to see what was in it," and "found a great deal that neither its followers nor its opponents had prepared me to expect." Although I know of no place where she refers to herself as a "Marxist," there is little doubt to anyone familiar with her work that she fits in the Marxian tradition. For example, she opens her Economics: An Awkward Corner by remarking that "it is impossible to understand the economic system in which we are living if we try to interpret it as a rational scheme. It has to be understood as an awkward phase in a continuing process of economic development." Like Kalecki, she is sensitive to the dangers which depression poses due to the threat of fascism and militarism, and notes that "if a British government after 1931 had known how to make full employment by peaceful means, the Nazis would have had no appeal. But full employment, in the democratic countries, had to wait for a new war, and ever since, cold and hot wars have made a great contribution to maintaining it." In her more recent works, Ms. Robinson has become increasingly pessimistic about the prospects for capitalism, although she stops short of making predictions about its demise. In particular, she notes the misuse which contemporary economics has made of Keynesian theory. After mentioning Kalecki's discussion of the political business cycle, she points out that "just now [it] seems to be taking a more violent form than ever before."

The advocates of "Keynesian" policies accepted only half of Keynes' diagnosis of the instability of capitalism. He described how the level of output is determined (in given technical conditions) by investment and consumption. He described how the level of prices is determined by the level of money-wage rates. It was sufficiently obvious that if continuous near-full employment was maintained without any change in traditional institutions and attitudes in industrial relations, there would be an irresistible pressure to inflation.
We thus encounter again the problem of income distribution in government attempts to achieve full employment. There are two ways in which the government might attempt to increase effective demand. One would be to increase taxation on the wealthy and to distribute the funds to middle income people who would use the additional income to purchase goods and services and thus increase effective demand. Leaving aside considerations of social justice, this is the economic rationale for progressive taxation policies. These policies are, however, unpopular with the wealthy, and they use their influence to defeat progressive taxation. The result is that the funds for government spending must come from government borrowing, which increases the money supply and causes inflation. This approach is doomed to failure, as Keynes himself recognized.

The source of government funds is not the only cause of the problems that Robinson analyzes. She notes that in addition to problems arising out of economics' acceptance of Say's Law, there is a new crisis of economic theory now confronting capitalism. "The first crisis," she says, "arose from the breakdown of a theory which could not account for the level of employment. The second crisis arises from a theory that cannot account for the content of employment."

Keynes did not want anyone to dig holes and fill them. He indulged in a pleasant daydream of a world in which, when investment had been kept at the full employment level for thirty years or so, all needs for capital installations would have been met, property income would have been abolished, poverty would have disappeared and civilized life could begin.

But the economists took up the argument at the point where it had broken off before the war. When there is unemployment and low profits the government must spend on something or other—it does not matter what. As we know, for twenty-five years serious recessions were avoided by following this policy. The most convenient thing for a government to spend on is armaments. The military-industrial complex took charge. I do not think it plausible to suppose that the cold war and several hot wars were invented just to solve the employment problem. But certainly they have had that effect. The system had the support not only of the corporations who made profits under it and the workers who got jobs, but also of the economists who advocated government loan-expenditure as a prophylactic against stagnation.... It was the so-called Keynesians who persuaded successive presidents that there is no harm in a budget deficit and left the military-industrial complex to take advantage of it. So it was that Keynes' pleasant daydream was turned into a nightmare of terror.
We should notice that, in addition to the obvious frightening consequences of spending on armaments, there is another important economic consequence. Increasing incomes and effective demand by this means has much the same effect on the prices of consumer goods as does government borrowing. Incomes rise, thus increasing demand for consumables, but there is no corresponding increase in the output of consumer goods and services. This in turn leads to inflated prices for the latter. On the other hand, increasing spending on consumer goods and services yields a greater output and thus does not entail inflated prices. Spending on armaments is, in this regard, hardly beneficial to the economy of any country.

One of the principle functions of the productions of armaments is to control the Third World. Marxists such as Lenin and Rosa Luxemburg, as well as liberal reformers such as John Hobson, have long recognized the role of imperialism in developed capitalism, but no one has clarified and criticized capitalism's use of imperialism better than Ms. Robinson in her Aspects of Development and Underdevelopment. The failure of the capitalist model of economic development in the modern world is no place more evident than in its application to the Third World. And it is likely that the next crash of capitalism will be triggered by the collapse of a small economy that is unable to pay its creditors in the developed world.

Aspects of Development and Underdevelopment does not paint an optimistic picture for capitalism. The capitalist model of development characterizes the relations between the developed and underdeveloped nations as friendly, with the former helping the latter to develop their economies by providing them with the necessary capital and expertise. Ms. Robinson paints a rather different picture of the process.

The intrusion of the capitalist economy into what is now the Third World began with trade in search of exotic commodities and went on to organise production of some of them on the spot.... Under the European empires, grants of lands for capitalist investment were made available; a labour force had to be recruited from men and women whose need to earn money made them willing to accept strict discipline, low wages and an isolated life away from their home communities.

She goes on to point out that the so-called helping hand of the developed Western economies is not so generous as the apologetic economists would have us believe.
The mechanism of capitalism is that a successful business has profits to invest in expanding its operations, and when its credit is established it can borrow as well. The limit on its expansion does not come from lack of finance but from the market in its homeland for the range of commodities that it produces. Therefore it is continually searching for new things to produce. An outlet for earlier generations of commodities is then advantageous. The research and development has all been done, the technology and designs tried and given a new lease of life in supplying a fresh market with a labour force recruited and trained to work it.

Since the end of the 1950's, when the flow of aid fell off with disillusionment and fatigue amongst the main donors, they attempted to salve their conscience with the argument that direct investment had taken over the task of development from them. However, the finance coming into Third World countries from the transnational corporations cannot be regarded as a transfer of resources to the poor countries from the rich. The reverse is the case. In the early 1970's remittance of profits from old investment and payments required to service old loans (apart from OPEC) much exceeded new investments. Taking the Third World as a whole, the great corporations are extracting surplus from them rather than transferring "capital" to them.

She points out first of all that "there is no magic in importing capital that can be relied upon to generate development unless the digestive mechanism of the recipient is able to make use of it," and says that this accounts for the different results from the injection of foreign capital in America and in the Third World. She concludes that "there is a certain complacency in mainstream economic teaching which is misleading even in its homeland and cruelly deceptive when transferred to the Third World."  

I cannot say when the capitalist system will experience another crash such as that of the 1930's, or what exactly will be the immediate cause of such a crash. Although it seems likely that a loan default by some Third World country might produce it, the current policies of Reagan and the proponents of "supply side economics" could lead to a collapse without the influence of international debt problems, as Kalecki predicted in his discussion of the political business cycle. The point of the argument in this chapter is not, however, to prove that a crisis is imminent within any particular time frame, but to lead the reader to reassess the probability that s/he assigns to such a possibility. The American education system from top to bottom has proclaimed for some time now that "we have learned to prevent depressions," and the argument has succeeded in winning the assent of most
people. This success has been aided by a span of nearly half a century with no major depressions, an historical pattern which is the only one that most of us have seen. Thus, so far as our own experience can tell us, there are grounds for thinking that the attempt to smooth out the business cycle has succeeded. I have been arguing, in opposition to this, that a belief in the stability of the system is misplaced, and that concern about depressions, unemployment, and the business cycle are as relevant as ever before. In addition, I should point out the obvious fact that the economic crises of capitalism have shown a clear increase in severity, so that there is every reason to expect that a next depression would be at least as bad as, and perhaps even worse than, the depression of the thirties.

We must also remember the social and political consequences of the last depression. Faith in the system of liberal, laissez-faire capitalism throughout the Western world was shattered, and more or less drastic solutions applied in an attempt to halt the disastrous slump. The lease drastic of these were the Keynesian policies in England, France, and America; the more drastic restructuring of society was the development of fascism in Germany, Spain, and Italy. Other than socialism these are the only remedies after one rejects Say's Law, and of them, there is today a great distrust of the Keynesian policies. In light of the obvious insanity of the fascist alternative, it becomes particularly important to examine anew the socialist alternative.

It is beyond the scope of this study for me to enter into an exhaustive examination of the socialist system and to explain in full why it is superior to capitalism. Fortunately, a good deal of this work has been done already by David Schweickart in Capitalism or Worker Control: An Ethical and Economic Appraisal. There is, however, a great deal of work needing to be done on the actual structure and workings of a socialist economy and much remains to be done.

Nevertheless, is is essential to say something about how a socialist economy would work and to contrast it with capitalism. Socialism today has a bad name and Marxists have often failed to dispel this bad name. In some cases, they have even contributed to it. The next chapter therefore addresses two of the major questions that would confront the developers of a socialist economic and political order, and shows that there questions are solvable within a socialist regime. These questions concern the structure of the political system under socialism and the extent to which such a system could preserve the liberties guaranteed under liberal capitalism, and the structure of a socialist economy.
CHAPTER THREE FOOTNOTES


2. Eduard Bernstein, Evolutionary Socialism, pp. 79-80; quoted in Laidler, History of Socialism.

3. Ibid.

4. A detailed discussion of the historical problems of revisionism would be worthwhile, but is beyond the scope of the present work. To summarize the historical events, the revisionist line triumphed in the German Social Democratic Party, and revolutionary Marxism was defeated. Following this, the Social Democrats, the strongest of the world's Marxist political parties prior to the triumph of revisionism, supported the German government in World War I and was then obliterated by the Nazis after a dismal history of attempting to patch up the holes in the capitalist fabric. It is no exaggeration to say that the impact of these events is being felt even today in the Western world.

5. The quoted phrase is the subtitle of the first volume of Capital.


7. This is the subtitle of the second volume of Capital.


13. Ibid., p. 617.

14. The reader should bear in mind here that in speaking of commodities, we are speaking of objects that are produced not for the personal use of the producer, but rather for exchange.
15. See page 58, above.


17. So long as combinations of individuals take the form of partnerships and remain small enough that they do not influence their markets, and so long as no firm's income is so large that their decisions affect the larger economy, the assumption of perfect competition works reasonably well. Schumpeter, in discussing this period, says: "The unit of that private property economy was the firm of medium size. Its typical legal form was the private partnership. Barring the 'sleeping' partner, it was typically managed by the owner or owners, a fact that it is important to keep in mind in any effort to understand 'classic' economics." (Schumpeter, op. cit., p. 545)

18. Schumpeter notes the existence of crises in 1815, 1825, 1836-9, 1847-8, 1857, and 1866. Nevertheless, in each of these cases, the policy of laissez-faire succeeded in eliminating the problem before there was cause to doubt the policy. (ibid.)


21. Ibid.


23. Ibid.

24. Quoted in Blaug, op. cit., p. 162.


27. Ibid.


29. Schumpeter, op. cit., p. 739.
31. Shackle says: "Scarcity and versatility of resources, combined with perfect and universal knowledge of the satisfactions to be derived from each use of these resources throughout the entire range of possibilities revealed by a given state of technology, ensured that... resources would always be fully employed." (The Years of High Theory, p. 4)

32. Schumpeter points out that "the relations from which we start, according to whether they link elements that carry the same time subscript or different ones, may define a static or dynamic equilibrium." (op. cit., p. 970)

33. Ibid., p. 1002.

34. Ibid., p. 759. See also Eric Hobsbawm, Industry and Empire, pp. 127 ff.

35. Shackle, op. cit., pp. 4-5.

37. This will strike some as odd. There is a tendency to associate capitalism with war, an association which, in light of the history of the twentieth century, seems incontestible. But our concern at present is with capitalist theory which, as we have seen, is not always realistic and up-to-date. The theory is, however, a theory that stresses harmonious free trade.

36. Ibid., pp. 4-12.

38. See footnote 26, above.


40. Ibid.

41. Schumpeter and Spiethoff agree that it is the "wave-like fluctuation in business" that requires explanation rather than the crisis itself; that "these alternating situations... are the form economic development takes in the era of capitalism;" that the beginning of developed capitalism dates only from 1821 in England and the 1840's in Germany; that the figure for the consumption of iron is the best index of business conditions; that the causal nexus begins with the purchase of the means of production and materializes first in the production of the industrial plant; and that booms arise due to greater capital investment. (The Theory of Economic Development, pp. 214-15)

42. Ibid., p. 215.

43. Ibid., pp. 215-6.
44. Schumpeter, Capitalism, Socialism, and Democracy, p. 82.


46. Ibid., pp. 1132-3.


49. John Maynard Keynes, Essays in Persuasion.


51. Ibid., p. 17.

52. Quoted, ibid., p. 16.

53. Ibid. Pigou says, "With perfectly free competition... there will always be at work a strong tendency for wage-rates to be so related to demand that everybody is employed.... The implication is that such unemployment as exists at any time is due wholly to the fact that such changes in demand conditions are continually taking place and that frictional resistances prevent the appropriate wage adjustments from being made instantaneously. (Pigou, Theory of Employment, p. 176)

54. Joan Robinson refers to this crisis as the first crisis of economic theory. I discuss her essay, "The Second Crisis of Economic Theory" later in this chapter.


56. Keynes continues: "Subject to the qualifications of frictional and voluntary unemployment, the volume of employed resources is duly determined, according to the classical theory, by two postulates. The first gives us the demand schedule for employment, the second gives us the supply schedule; and the amount of employment is fixed at the point where the utility of the marginal product balances the disutility of the marginal employment.

"It would follow from this that there are only four possible means of increasing employment:

(a) An improvement in organisation or in foresight which diminishes 'frictional' unemployment;

(b) a decrease in the marginal disutility of labour, as expressed by the real wage for which additional labour is available, so as to diminish 'voluntary' unemployment;"
(c) an increase in the marginal physical productivity of labour in the wage-goods industries (to use Professor Pigou's convenient term for goods upon the price of which the utility of the money-wage depends);

or (d) an increase in the price of non-wage-goods compared with the price of wage-goods, associated with a shift in the expenditure of non-wage-earners from wage-goods to non-wage-goods.

"This, to the best of my understanding, is the substance of Professor Pigou's Theory of Employment -- the only detailed account of the classical theory of employment which exists. (The General Theory of Employment, Interest, and Money, pp. 6-7)

57. Ibid., p. 7.

58. Ibid., p. 8.

59. Ibid., p. 9.

60. Keynes points out that the classical theory assumes that the real wage changes in the same direction as the money wage. "But in the case of changes in the general level of wages, it will be found, I think, that the change in real wages associated with a change in money-wages, so far from being usually in the same direction, is almost always in the opposite direction.... This is because, in the short period, falling money-wages and rising real wages are each, for independent reasons, likely to accompany decreasing employment; labour being readier to accept wage-cuts when employment is falling off, yet real wages inevitably rising in the same circumstances on account of the increasing marginal return to a given capital equipment when output is diminished." (Op. cit., p. 10)

61. Ibid., p. 11.

62. Keynes says that "the classical theory... has taught us to believe that prices are governed by marginal prime cost in terms of money and that money-wages largely govern marginal prime cost. Thus if money-wages change, one would have expected the classical school to argue that prices would change in almost the same proportion, leaving the real wage and the level of unemployment practically the same as before, any small gain or loss to labour being at the expense or profit of other elements of marginal cost which have been left unaltered." (Ibid., p. 12)
63. Ibid., p. 13. Keynes says later, "the classical theorists resemble Euclidean geometers in a non-Euclidean world who, discovering that in experience straight lines apparently parallel often meet, rebuke the lines for not keeping straight--as the only remedy for the unfortunate collisions which are occurring. Yet, in truth, there is no remedy except to throw over the axiom of parallels and to work out a non-Euclidean geometry. Something similar is required to-day in economics. We need to throw over the second postulate of the classical doctrine and to work out the behaviour of a system in which involuntary unemployment in the strict sense is possible." (Ibid., p. 16)

64. Ibid., p. 20.

65. Ibid., p. 21.

66. Ibid., p. 28.

67. Ibid., p. 30.

68. Ibid.

69. Ibid., p. 31.

70. Ibid., p. 34.

71. This phrase was used by Maurice Dobb in describing Sraffa's attempt to overthrow the neo-classical theory of value. (See Maurice Dobb, "The Sraffa System and Critique of the Neo-Classical Theory of Distribution" in Hunt and Schwartz, A Critique of Economic Theory, p. 208.)


73. Keynes, "A Short View of Russia" (1925) in Essays in Persuasion, p. 300.

74. Ibid.

75. Schumpeter, op. cit., p. 1132, fn. 23.


77. Joan Robinson gives the following quotation of a note that Marx had intended to elaborate later: "Contradiction in the capitalist mode of production: the labourers as buyers of commodities
are important for the market. But as sellers of their one commodity-- labour power-- capitalist society tends to depress them to the lowest price. Further contradiction: The epochs in which capitalist production exerts all its forces are always periods of overproduction, because the forces of production can never be utilised to such a degree that more value is not only produced but also realised; but the sale of commodities, the realisation on the commodity-capital, and thus on the surplus value, is limited, not by the consumptive demand of society in general, but by the consumptive demand of a society in which the majority are poor and must always remain poor." (Quoted in An Essay on Marxian Economics, p. 48)

78. See the Keynes quote, page 100 above, footnote 69.


80. Ibid., p. 202. I refer the reader to Smith's article for proof that the argument is to be found in Capital.

81. Ibid., p. 203.

82. Ibid., my emphasis.


84. Ibid. Kalecki says, "I assume in the whole paper that the workers do not save (or dis-save). For the savings of workers certainly do not play an important part in the economic process, while to take it into consideration can often obscure some essential features of the capitalist economy. Therefore, it seems to me preferable to deal here with a system in which only capitalists (entrepreneurs and rentiers) save-- exactly as is usually admitted in the assumption of a closed economy as being justifiable in a first approach."

85. Ibid., p. 78.

86. Ibid., p. 79. "We see now that the spending of the capitalists determines a position of marginal value-added curves such that the sum of the hatched areas, i.e. the incomes of the capitalists, is equal to the amount they spend. In this way the level of the spending of the capitalists (expressed in wage units) is the chief determinant of the short-period equilibrium and particularly of employment and income."

87. No footnote.
88. J.M. Clark, Economic Reconstruction; quoted in Hansen, op. cit., p. 11.

89. Recent economics has, in fact, shifted away from Keynes' model of comparative statics toward Kalecki's dynamic concern with the long-run question of economic growth. Harrod's work developed this line. See Shackle, op. cit., p. 96.

90. Kalecki, op. cit., p. 96.


92. Ibid., pp. 422-3.

93. Ibid., p. 427.

94. Ibid.

95. Ibid., p. 428.

96. Ibid.

97. Ibid., pp. 428-29.

98. The only error was that, rather than using their influence within the government bureaus, the capitalist class exerted its influence within the electoral arena.

99. "The regime of the 'political business cycle' could be an artificial restoration of the position as it existed in nineteenth century capitalism. Full employment would be reached only at the top of the boom, but slumps would be relatively mild and short-lived." (Ibid., p. 429)

100. Ibid., p. 425.

101. Ibid.

102. Ibid., p. 426.

103. Ibid., p. 430.

104. Ibid., p. 429.

105. Joan Robinson, The Economics of Imperfect Competition.

107. She remarks that Piero Sraffa teased her about her study of Marx, saying that she treated him as an early forerunner of Keynes, and acknowledges that there is much truth in this. (Ibid.)

108. Economics: An Awkward Corner, p. 3.

109. Ibid., p. 5.


111. On this, see Josef Steindl, Maturity and Stagnation in American Capitalism, p. xi. Steindl shows declining taxes on the wealthy from 1951-1971 as compared with the period 1951-1957.

112. Keynes remarked, "Lenin was certainly right. There is no subtler, no surer means of overturning the existing basis of society than to debauch the currency. The process engages all the hidden forces of economic law on the side of destruction, and does it in a manner which not one man in a million is able to diagnose."


114. This feature of capitalism has been noticed by Marxists for a long time. See, for example, the works of Rosa Luxemburg, Lenin, and Bukharin.


116. Ibid., p. 86.

117. Ibid., pp. 110-11.

118. David Schweickart, Capitalism or Worker Control: An Ethical and Economic Appraisal.
IV. AFTER THE REVOLUTION:

POLITICS AND POLITICAL ECONOMY UNDER SOCIALISM

The history of this century shows that even the most severe economic crisis is not by itself sufficient to cause a socialist revolution, and Wilhelm Reich further substantiates this claim in discussing the situation in Germany during the rise of Nazism.

According to Marx's theory the economic preconditions for a social revolution were given: capital was concentrated in the hands of the few, the growth of the national economy to a world economy was completely at variance with the custom and tariff system of the national states, capitalist economy had achieved hardly half of its production capacity, and there could no longer be any doubt about its basic anarchy. The majority of the population of the highly industrialized countries was living in misery, some fifty million workers scraped along on next to nothing. But... contrary to expectations, at the crossroads between "socialism and barbarism", it was in the direction of barbarism that society first proceeded. For the international strengthening of fascism and the lagging behind of the workers' movement was nothing other than that.

This phenomenon clearly raises a serious problem for the Marxian theory of revolution leading to socialism. One could say that this is a problem that is as serious for Marxism as the crisis brought upon capitalist theory by the fall of Say's Law discussed above.

This brings us to the important and difficult relationship between theory and practice that Marx recognized as so crucial. Recall that Marx's stated purpose was not simply to interpret the world, but to change it. He assumed that people would eventually perceive their own interests and act on them. The development of capitalism, he held, reduces more and more people to wage labor until the vast majority of the people of society are pushed into that class. Then, when the system breaks down and a high percentage of the workers face unemployment, the members of the working class must realize that their interests are opposed to those of the capitalists and unseat them from their position of control in society.
The failure of this to occur can be explained in part by historical circumstances and in part by the shortcomings of Marxist theory and practice. It is impossible to isolate precisely which causes are fundamental, since we cannot discover whether different strategies and tactics would have made a difference in, say, 1930 Germany, or whether a different theory or interpretation would have made a difference in any way. It is nevertheless clearly important to isolate past shortcomings and to correct them in theory as well as in practice. Marxist economic and political theory has the same role in society as all previous theories of politics and political economy: to justify a certain kind of social and economic order. It must today do better than it did in Germany earlier in this century, or we may again face the same result.

A socialist revolution can succeed today only if it offers a vision of a new society that is concretely better than the present one. Marxists have too often failed to do this, since they have not explained enough about the institutions that will help a socialist economy improve on the performance of a capitalist economy. Marx himself did not take up this question in any detail. His greatest work, Capital, discusses in three volumes (1) "a critical analysis of capitalist production," (2) "the process of circulation of capital," and (3) "the process of capitalist production as a whole." He set out there to demonstrate that capitalism is, as a result of its own inner dynamic, doomed to fall. To work out this proof was the work of a lifetime, and he was not able to work out much of an account of how socialism would work.

There is, of course, much in Marx that is indispensable to an understanding of socialism. It is, after all, the society that replaces capitalism and therefore must be understood from the point of view of capitalism's successor. Consequently, the more we know about capitalism, its successes and its failures, the more we can figure out about socialism.

It is impossible to appreciate this point and the arguments that follow without some understanding of Marx's use of dialectics. Too many volumes have been filled with discussions of dialectics, and most have succeeded only in making it even more baffling. Fortunately this is unnecessary for our purposes. I believe that the essence of dialectics for our purposes can be distilled in two main points. (1) Change in society comes about because of contradictions in the society. Contradictions in capitalism, for example, (as in the contradiction between the awesome productive capacity of society and the unemployment of that productive capacity while millions of people endure needless suffering) lead to crises that must be resolved. Eventually, however, the crises become too great for the system to handle and can be resolved only by the elimination of the capitalist system.
(2) In a revolutionary social change such as we have been discussing, the revolution involves elimination of some elements of the new society as well as preservation of other elements in a new form. This point is crucial because it answers a fear that nearly all opponents of socialism have about revolutionary change--that a revolution involves a "smashing up" of everything that has existed. A new system, governed entirely by new principles such as the welfare of all members of society and the provision of decent jobs for all members does change all social institutions appreciably, but does not eliminate completely all previous institutions.

The arguments that follow are an attempt to explain and justify a set of social institutions rather than an attempt to apply carefully at each point the two preceding principles. One need not keep them in mind at all times when considering the merits of the arguments. But the principles will help to explain why in some cases I argue on behalf of an institution that might seem particularly characteristic of capitalist society as we know it.

The Political Structure of a Socialist Society

Many people believe that a socialist society involves a dictatorial government, a sameness of lifestyle (with everyone driving identical cars and wearing identical clothes), and fewer personal and political freedoms. A glance at existing socialism societies (e.g., the Soviet Union) generally confirms this viewpoint, and although a good deal of this perception is due to capitalist efforts to convince us of this, an equally good deal is doubtless based on the truth. There is little doubt that the Soviet form of government rules with an iron hand and gives the average person little access to the political decision making in society, or that there is a great deal of oppression in that society. These are serious problems indeed. Many people find them sufficient to overturn any consideration of socialism as a form of government, and they are the first problems that one must sort out in defending socialism.

Now it is fairly common knowledge that the Soviet system of government is a model that allows for only one political party, The Communist Party. One might attempt to rationalize such a model in a number of ways, such as by claiming that it is most efficient and allows for the best planning, or by claiming that it is a more co-operative system of decision making than a multi-party system where many parties compete with one another. These arguments are, however, extremely weak. It may well be more efficient to make decisions with a limited number of viewpoints and schemes, but such efficiency is hardly beneficial unless one has some way of knowing that the
excluded viewpoints and schemes are mistaken, and I submit that there is never any way of making such a determination. The completion of this argument may be left to Mill's *On Liberty*, and we may move on to the second point raised. This too is weak. Although a socialist society is based upon cooperation rather than upon competition, whenever there are ideas that are in any sense conflicting, the conflicting ideas may be regarded as competing with one another. Hence, to rule out the free exchange of ideas and plans based upon a simplistic notion of cooperation invites stagnation in society.

It is implausible to think that people would not continue to have different notions about how a socialist should best operate following a revolution. Under capitalist society, different people support different capitalist parties (e.g., the Democrats and the Republicans in the United States) based upon their beliefs about how best to govern a capitalist society. There is no reason why a socialist society should not have the same sorts of differences, and therefore no reason not to allow a number of political parties under socialism. If capitalism can survive changes in political parties and policies every few years, socialism should be able to do likewise.

A socialist government would not be open to the extent of allowing policies implementing capitalism or capitalist institutions, and these sorts of policies and institutions would be forbidden by the constitution of the society. Within the limits of the constitution however, a variety of different socialist policies might be tried, based upon what the majority of the citizens believed at the time of the most recent elections.

The institution of a multi-party socialist system represents a fundamental change over the currently existing socialist societies, and indeed might inspire by its example some revolutionary changes within those societies themselves. The benefits to the average citizen would be enormous. Marx's socialism was to be a more democratic society than the capitalist system it would replace. It was based upon removing the control of society from the hands of the few and extending it to the members of the working class, i.e., to the majority of the citizens. This, however, is meaningless unless the citizens participate in the social decisions of the society, and in a mass society this entails deciding who shall sit in the posts where the day-to-day decision making occurs; that is, it entails free and open-to-all elections.

As obvious as this might seem, revolutionary socialists and opponents of socialism alike have assumed through the years that a socialist society is a one-party society. This has been damaging to the socialist movement. One tragic result has been that it has
soured a large number of working class people on the socialist model by sewing in them distrust of such a system. A one-party system with a central authority making the decisions for everyone can perhaps claim to decide in the best interests of the majority, but not in the name of the majority. The commitment to democracy among most people in the industrialized West is deep indeed, and the one-party model leaves democracy to the capitalists when it should work to the advantage of the socialists.

In addition to allowing for a multi-party government, a socialist society must safeguard and extend nearly all of the freedoms of capitalist society. Indeed, the only "freedom" that socialism need eliminate is the freedom to enrich oneself from the labor of another person. In the next section, I discuss how socialism would provide for economic freedoms such the choice of what to buy and of one's work. Other important freedoms include freedom of speech and freedom of religion. The right of freedom of speech must extend even beyond what is allowed by the constitution, and must permit even the right to advocate a return to capitalism, just as liberal capitalism has always allowed advocacy of forbidden actions. Again, there is little in this regard that I add to the arguments of Mill's On Liberty, and the argument parallels the reasons given for the multi-party system; the free exchange of ideas is a benefit to the society as a whole, even when the recommended policies and actions are prohibited.

There is likewise no good reason for prohibiting any religion, except insofar as a religion is based upon the coercion of others. Marx said that "religion is the opium of the masses," but he was referring to the fact that religion often plays a reactionary role in encouraging people to accept injustices as somehow natural. Now such a criticism of many religions is certainly true, but is not an argument for the banishment of religion in general or even for the banishment of religions that act as such an opiate (again, unless they are based upon the coercion of others.) It matters not at all to a socialist society what any of its citizens believe about such matters as what will happen to their souls after they die. The only relevant questions are those relating to the behavior of the citizens in their various roles in society's economy and polity.

A socialist political system can and must be as open as a capitalist one. These considerations are important to most people, and it is unlikely that large numbers of people will turn to socialism unless they believe that it will provide them with latitude in their personal lives and with control of the political process. Here we have, I believe, a large part of the explanation for the past failures to build a socialist movement in the United States and the industrialized West. The elimination of these past failures requires a commitment by socialists to a political order that does not reject wholesale all elements of the capitalist political system simply because they were a part of such a system, but rather preserves in a new and superior form
those elements of capitalism that are progressive. One does not eliminate contradictions by eliminating both contradictory conjuncts, but by eliminating one of them.

These proposals take us a considerable way toward answering the charges that socialist societies, being centrally planned and controlled societies, are inherently totalitarian. No doubt they are nothing more than a start in the right direction, but they do give an indication that socialism can allow far more freedom and democracy than the system of socialism employed in the Soviet Union and its satellites. This leads directly to the economic questions of a socialist society. It is natural to ask whether socialism can indeed meet our economic needs better than capitalism, or whether it will instead be an inefficient system with a lower mean and median standard of living. The answer is, as we shall see, that socialism promises a far better standard of living than exists under capitalism, at least for the vast majority of the people.

On the Economic Theory of Socialism

A new socialist economy immediately confronts three major problems. It must first, of course, solve the economic problem of unemployment that was primarily responsible for the institution of socialism. All members of the society must be assured of work at an income that provides them with a decent standard of living. It must also allocate the resources of society so as to produce those goods and services that the members of society demand; i.e. it must ensure "consumers' sovereignty." Finally, and closely related to the preceding two problems, it must allocate jobs among the work force in a way that both guarantees efficient production and allows workers to choose their occupations (provided that they have the requisite skills).

The solution to the first problem is straightforward, although it leads to a complicated set of questions that we can presently answer only imperfectly. With the means of production entirely in the hands of the people, each member of society would receive a work assignment and an income. Most people would simply continue at their existing jobs, particularly in those occupations that are essential to the process of production. Many presently unemployed people would find work by returning to their previous jobs, as many industries that have recently had many layoffs and plant closings had been engaged in the production of essential products to the economy. Those workers thus would be called back and many plants would be re-opened. In cases where the plants were worn out or obsolete, the work force would be put to work replacing the older plant and equipment with new plants,
housing, etc. In some cases, where the new plant installation takes a period of years and the local work force cannot be fully employed in the production of new plant, there would be several options. Some workers would want to move to an area where they could find immediate employment in their chosen trade, and where there is a lack of supply of labor, such moves would increase economic efficiency. In other cases, the society as a whole would provide subsidies to support job re-training of the work force in order to prepare them for their jobs. And finally, the remaining workers would temporarily go to work in preparing the city or town for the time when the new industry is in place—e.g. housing and highway construction, parks and recreational facilities, etc.

The most common objection to this scheme will be that it is inflationary, but this objection is easily answered. The workers under this scheme are not just receiving incomes as they do under a system of welfare payments, but are producing goods and services that are a benefit to their society. In other words, accompanying the increase of demand which results from higher incomes is a comparable increase in supply which will hold prices in balance in most cases. And where problems of overfull employment do occur, the work force can be cut-back by shortening the work week without having anyone unemployed as a result.

Recall that under capitalism, unemployment comes about because of swollen investment funds that do not make their way into circulation. Socialism possesses a flexibility for utilizing these funds that is not readily available to capitalism. When a situation arises where, for one or another reason, there are no socially beneficial avenues for investment, consumption can be increased by raising workers' incomes. One might object that workers could hold onto this additional increment of income and still generate economic stagnation, but several factors would tend to discount this possibility. First of all, under socialism, there would be no possibility of earning money from speculation, and this would remove the major incentive for keeping funds out of circulation. Also, with incomes being so much more evenly distributed in a socialist system, the effect of some group of individuals holding funds would be incredibly less than the effect of a large capitalist institution or bank. Hence, although the socialist system may not work perfectly in this regard, a bit of economic stagnation under a socialist system need not produce depressions.

I have said nothing in the above discussion about the mechanism for economic decision making under socialism. Although I realize that this is a most important question, I cannot presently spell out all of the details concerning it. It can be answered in part by examining the successes and failures of existing socialist systems, including of course the Soviet Union and China. But many of these details can emerge only from the experience of putting socialism into practice (i.e., from what
Kuhn calls 'normal science.')

Socialism can gain widespread support only if it supplements a full employment policy with an improved standard of living for the citizens of the society, and many opponents of socialism have argued that only a free enterprise, private property can succeed in meeting consumers' preferences for goods and services. There is a common perception that socialist societies offer consumers a limited range of products due to the inability of economic planners to know what consumers desire. These objections are, however, based on a misunderstanding of socialism and were answered forty-seven years ago in Oskar Lange's paper, "on The Economic Theory of Socialism." the third paper mentioned in the previous chapter's discussion of the 1937 edition of The Review of Economic Studies.

The most articulate critic of socialism to hold this position was the economist Ludwig von Mises, and Lange begins his paper by crediting Mises with having raised an important problem for socialists.

Socialists have certainly good reason to be grateful to Professor Mises, the great advocatus diaboli of their cause. For it was his powerful challenge that forced the socialists to recognise the importance of an adequate system of economic accounting to guide the allocation of resources in a socialist economy. Even more, it was chiefly due to Professor Mises' challenge that many socialists became aware of the very existence of such a problem.

Mises contended that the problem which he raised was unsolvable for socialism, but Lange points out that "Professor Mises' contention that a socialist economy cannot solve the problem of rational allocation of its resources is based on a confusion concerning the nature of prices."

As Wicksteed has pointed out, the term price has two meanings. It may mean either price in the ordinary sense, i.e. the exchange ratio of two commodities on a market, or it may have the generalised meaning of "terms on which alternative are offered."...It is only "prices" in the generalised sense which are indispensable to solve the problem of allocation of resources.

Mises maintains that a competitive market in capital goods is necessary in order to choose among different investment opportunities, and thus that without private ownership of the means of production, rational allocation of resources under socialism is impossible. Lange summarizes this argument as follow:
...in consequence of public ownership of the means of production, there is in a socialist economy no market on which capital goods are actually exchanged; there are obviously no prices of capital goods in the sense of exchange ratios on a market. And, hence, Professor Mises argues, there is no "index of alternatives" available in the sphere of capital goods.

But, Lange argues, the absence of a capitalist market and of capitalist exchange ratios does not entail the impossibility of indexing alternatives. Indeed, Lange adds, "it is surprising to find this institutionalist view supported by a prominent member of the Austrian school, which did so much to emphasise the universal validity of the fundamental principles of economic theory." The neo-classical school of which Mises was a member views economics as concerned with the rational allocation of scarce resources among alternative uses and purportedly applies to any economic system faced with this situation. Mises, in his attempt to defeat socialism, forgets this feature of his theory.

This last point is devastating to Mises' argument and shows the fallacy behind every neo-classical attempt to criticize socialism by means of such economic principles as Pareto optimality. The mistake does not lie exclusively with defenders of the capitalist order. It has been repeated by many Marxists who perceive the marginal utility theory as the opposition. Schumpeter has rightly remarked that in logic, there is no sense whatever in this. The marginal principle per se is a tool of analysis, the use of which imposes itself as soon as analysis comes of age. Marx would have used it as a matter of course if he had been born fifty years later. It can no more serve to characterize a school of economics than the use of the calculus can serve to characterize a scientific school or group in mathematics or physics. To this day, the very use of the term Marginalism (sic) is indicative of erroneous conceptions of the nature of the principle. A fortiori, it cannot have any bearing on policy or social philosophy.... It is only the political or ethical interpretation that is put upon the results of marginal analysis that can have such a bearing.

Lange is fully aware of this, and makes use of these tools himself to defend socialism. Following his dismissal of Mises' criticisms of socialism, he takes up the refined objections of Mises' students, Hayek and Robbins. They argue not that there are any problems in principle with socialist planners doing economic accounting, but that there are insurmountable problems with their doing so in practice. Any large scale economy would present economic planners with far too
many equations to solve to make possible replacement of the mechanism of the market with a system of economic planning.

Lange disposes of this argument brilliantly. He shows that determination of prices and of the allocation of resources would be no different in a socialist economy with a Central Planning Board than in a capitalist economy. The entrepreneur in a capitalist economy confronts a situation wherein s/he "regards the actual market prices as given data to which [s/he] has to adjust [her/him]self." Nothing prevents a socialist Planning Board from behaving likewise, and Lange proposes that this "must be imposed on managers of production by the Central Planning Board as an accounting rule. All accounting has to be done as if prices were independent of the decisions taken."  

There is no doubt that in some cases this procedure would lead to mistakes, but the mistakes would be no different than similar ones that occur under capitalism. An equilibrium price would be determined by the supply and demand for commodities, except that the supply would be determined by a decision of the planning board. Demand would continue to be determined by consumers, and would be reflected in their actual purchases. Then, "any price different from the equilibrium price would show at the end of the accounting period a surplus or a shortage of the commodity in question."  

Lange goes on to discuss the problem in more detail, and shows that in practice, a socialist economy would utilize the exact same process of trial and error as capitalist entrepreneurs employ.

If the quantity demanded of a commodity is not equal to the quantity supplied the price of that commodity has to be changed. It has to be raised if demand exceeds supply and lowered if the reverse is the case. Thus the Central Planning Board fixes a new set of prices which serves as a basis for new decisions, and which results in a new set of quantities demanded and supplied.  

Finally, in direct response to Hayek and Robbins, Lange points out that

Neither would the Central Planning Board have to solve hundreds of thousands (as Professor Hayek expects) or millions (as Professor Robbins thinks) of equations. The only "equations" which would have to be "solved" would be those of the consumers and the managers of production plants. These are exactly the same "equations" which are solved in the present economic system and the persons who do the "solving" are the same also. Consumers "solve" them by spending their income so as to get out of it the maximum total utility; and the managers
of production plants "solve" them by finding the combination of factors and the scale of output which minimises average cost.... Professor Hayek and Professor Robbins themselves "solve" at least hundreds of equations daily, for instance, in buying a newspaper or in deciding to take a meal in a restaurant.... To establish the prices which serve to the persons "solving equations" as parameters no mathematics are needed either. Neither is there needed any knowledge of the demand and supply functions. The right prices are simply found out by watching the quantities demanded and the quantities supplied and by raising the price of a commodity or service whenever there is an excess of demand over supply and lowering it whenever the reverse is the case, until by trial and error, the price is found at which demand and supply are in balance.

These arguments are, I believe, absolutely conclusive. Lange leaves no room for doubt about whether a socialist central planning board would be able to determine prices as efficiently and accurately as a capitalist market. And as capitalism ages and the size of capitalist firms increases, their economic price setting becomes even more similar to the system that would be utilized by a socialist central planning board. Yet the arguments persist. Lange closed his discussion by noting that in 1911, twenty-six years before the publication of his paper, "Professor Taussig classified the argument that 'goods could not be valued' among the objections to socialism that are 'of little weight.' After all the discussions since that time, no reasons can be found to change this opinion." Today, in 1984, we can only echo Lange's words, but of course the arguments continue--and doubtless will continue until the question is removed from the hands of the economists and the majority of the people in society realize the superiority of socialism.

Although Lange generalizes his argument to encompass a highly planned economy without free choice in consumption and occupation, his argument proceeds on the basis of an assumption of freedom of choice in these areas. There is a tendency to think that such freedom of choice is peculiar to capitalism, a tendency that the powers-that-be attempt to foster for obvious reasons. There is, however, no reason to conclude that a planned economy cannot allow for such freedoms, including a wide variety of tastes in consumption and individual choice in occupation--provided that there are sufficient openings in one's preferred field, and that the candidate has the required skills and education. So long as there is a demand for a certain kind of product or service, there is absolutely no reason why a socialist economy cannot supply it. Lange's discussion of the trial and error method of price determination and resource allocation shows that this can be accomplished.
In Part Two of his paper, Lange turns to a discussion of why socialism is superior to capitalism, and presents "the economist's case for socialism." He argues that by virtue of the more equal distribution of incomes under socialism, it is possible "to attain the maximum social welfare."

Under capitalism the distribution of the ownership of the ultimate productive resources is a very unequal one, a large part of the population owning only their labour power. Under such conditions demand price does not reflect the relative urgency of the needs of different persons and the allocation of resources determined by the demand price offered for consumer's goods is far from attaining the maximum of social welfare. While some are starving others are allowed to indulge in luxury. In a socialist society the incomes of the consumers could be determined so as to maximise the total welfare of the whole population.

Lange argues that the distribution of incomes under socialism must fulfill two conditions, that "the same demand price offered by different consumers represents an equal urgency of need" and that incomes must reflect the "marginal product" of the work performed. There is an apparent contradiction between these two conditions, since the former entails equality of income and the latter entails inequality, but Lange argues that the contradiction is easily resolved.

By putting leisure, safety, agreeableness of work, etc. into the utility scales of the individuals, the disutility of any occupation can be represented as opportunity cost. The choice of an occupation offering a lower money income, but also a smaller disutility, may be interpreted as the purchase of leisure, safety, agreeableness of work, etc. at a price equal to the difference of the money-income earned in that particular occupation and in others.

This explanation is faulty, and Lange does not succeed in eliminating the contradiction between his two conditions. The problem is that the differences in incomes will in many cases be among those requiring the least skill and thus having the lower marginal product. Hence, in many cases, higher incomes will be associated with more pleasant work and if anything will merely heighten the contradiction.

The contradiction is not, however, so serious as to undermine the argument for socialism. What we encounter here is the difference between a socialist economy ("to each according to her/his work") and a communist society ("to each according to her/his need"). A socialist
economy will provide material incentives in order to maximize production, even when those incentives do not reflect the disutility of the work involved. Nevertheless, there are distinct advantages to the socialist system since (1) under capitalism rewards reflect not one's contribution to the product, but the mere ownership of shares of stock and of property in general, and (2) under capitalism the inequalities are much greater than they would be under socialism. Furthermore, socialism will yield a higher gross product of consumers' goods as a result of a variety of improvements over the outmoded capitalism. Full employment will result in more economic value and higher productivity, and transfers of resources from the production of luxury goods for the wealthy capitalist class will further improve the standard of living for the average person—regardless of how one interprets 'average' in this case. Under socialism, in other words, the inequalities in society will not result in vast wealth alongside extreme poverty as one finds in modern capitalism.

Joan Robinson clarifies the harmful economic effects of a mal-distribution of wealth in discussing Third World countries, where "capitalists have been cutting the cake before the process of accumulation has got fairly under way." Her discussion, however, applies equally well to such developed economies as modern American and the developed world.

It might be said that, where there is general lack of employment, it is better to work for rentiers than not to work at all. But, when additions to rentier consumption turn from employing more servants to buying manufactured goods, they provide less employment and they absorb other resources as well.

The chief effect of this type of expenditure is to attract investment into increasing productive capacity for the least necessary kind of production. When income is unequally distributed and the higher incomes are largely spent on luxury goods, profits are easier and quicker to make in the markets fed by rentier consumption than in supplying wage goods or in building up the capacity of basic industry to produce means of production. Moreover, a large part of the investment that caters for the consumption of the rich is not really adding to productive capacity at all; it is merely taking over the market for pre-capitalist handicraft production from small-scale family businesses, so reducing employment and increasing the inequality of income which keeps its own market expanding.

It is a very remarkable fact that there is no discussion at all in orthodox economics of what form of investment is desirable from the point of view of society.
The usual doctrine is that the free play of market forces allocates given resources between alternative uses. But investment is creating resources additional to those already in existence. On what principle are they to be allocated? Keynes was interested in investment mainly as a means of keeping up effective demand and did not much care about its content. In the absence of any analysis of this question, economists generally seem to support the capitalists' principle that what is profitable is right. The application of this principle in the Third World leads to a large part of whatever surplus is available being devoted to the kind of production least propitious to all-round economic progress. Those who benefit from this kind of consumption, and from the profits to be made out of it, have the most political power (along with landlords and capitalist farmers) and they are not likely to be keen on supporting a different type of development.

Conventional measures of GNP per capita are used to divide the world into rich and poor countries without paying any attention to the division between rich and poor people within each. In fact, the highest level of luxurious living is often found in the poorest countries and with it, the greatest concentration of power in the hands of a few.

I doubt that it is possible today to produce a better case for socialism in any country, developed or undeveloped, than the above four paragraphs. My conclusion about the superiority of socialism for the masses of people in society stands in stark contrast to the conventional views about a socialist society pulling down the standard of living of most people due to high social service payments and the taxation that is supposedly necessary in order to support them. Most people, for example, associate the term 'socialism' with either the Soviet Union's model or the Swedish model. We have already seen that the socialist road need not follow the path of the Soviet Union, but to associate socialism with the Swedish model is even more ludicrous. Socialism would eliminate welfare payments to unemployed workers and put all able-bodied workers to work, thereby raising the GNP and, through an equitable system of distribution of the resulting incomes, the standards of living of most people. Of course, the incomes of those unemployed who today comprise the capitalist class will go down, but this can only serve to benefit the rest of society, including the members of the middle class who today are so fearful of socialism.

There is, then, no evidence for the view that socialism would be unable to provide a working economic model that would offer most people an improved standard of life. Lange points out, however, that the case for socialism is even more powerful.
the really important point in discussing the economic merits of socialism is not that of comparing the equilib­rium position of a socialist and of a capitalist economy with respect to social welfare. Interesting as such comparison is for the economic theorist, it is not the real issue in the discussion of socialism. The real issue is whether the further maintenance of the capitalist system is compatible with economic progress. That capitalism has been the carrier of the greatest economic progress ever witnessed in the history of the human race the socialists are the last to deny.... The ques­tion arises, however, whether the institutions of pri­vate property of the means of production and of private enterprise will continue indefinitely to foster economic progress, or whether, at a certain stage of technical development, they turn, from being promoters, into be­coming shackles of further advance. The last is the contention of the socialists.

In light of the history of the forty-seven years since Lange wrote these words, the case of the socialists has, I submit, become more powerful than ever before.

The case for socialism, however, means nothing in the absence of a decision to try socialism. This is the condition that is both necessary and sufficient for socialism's triumph today, but I am unfortunately unable to say how it will be fulfilled. All we can presently say is that the recurrence of another economic crisis will once again raise the question of what solution we should attempt, and hope that when faced with this choice anew, our society will have learned something from the mistakes of those who have in the past attempted in vain to reform an outmoded system. The conclusion of Lange's case for socialism continues to ring true today.

Marshall placed caution among the chief qualities an economist should have. Speaking of the rights of property he observed: "It is the part of responsible men to proceed cautiously and tentatively in abrogating or modifying even such rights as may seem to be inappro­priate to the ideal conditions of social life." But he did not fail to indicate that the great founders of modern economics were strong not only in caution but also in courage. Caution is the great virtue of the economist who is concerned with minor improvements in the existing economic system. The delicate mechanism of supply and demand may be damaged and the initiative and efficiency
of business men may be undermined by an improvident step. But the economist who is called to advise a socialist government faces a different task, and the qualities needed for this task are different too. For there exists only one economic policy which he can commend to a socialist government as likely to lead to success. This is a policy of revolutionary courage.
CHAPTER FOUR FOOTNOTES


2. These are the titles of the three volumes of Marx's Capital.

3. There are, however, certain limitations on this freedom, such as against fascism, racism, sexism, etc. These limitations need not always take the harsh forms often associated with the current Soviet model; indeed, they are already in place in democratic capitalism. Two simple methods are (1) rules of taste that are taught widely and hence become widespread, such as those currently observed regarding public cursing and more recently public utterances of racism, and (2) refusal of publications to permit the use of such language in print. In more extreme cases, there may be legal prohibitions against statements recommending, e.g., the extermination of a race or people. Liberal capitalism likewise forbids statements that are dangerous to the public, such as yelling "Fire!" in a crowded theatre.

4. Religions that are based upon racism, sexism, or oppression would be the only forms that would not be allowed.

5. For a detailed discussion of the current Soviet system that is closely aligned with my own view, see Roy A. Medvedev, On Socialist Democracy, particularly Chapter V, "One Party and Multiparty Systems under Socialism."

6. This is the same volume of the journal that contains Henry Smith's and Michal Kalecki's papers discussed in Chapter Three, above.

7. Ibid., p. 53. Lange continues:

Both as an expression of recognition for the service rendered by him and as a memento of the prime importance of sound economic accounting, a statue of Professor Mises ought to occupy an honourable place in the great hall of the Ministry of Socialisation or of the Central Planning Board of the socialist state. However, I am afraid that Professor Mises would scarcely enjoy what seems the only adequate way to repay the debt of recognition incurred by the socialists, and it is difficult to blame him for
not doing so. First, he might have to share his place with the great leaders of the socialist movement, and this company might not suit him. And then, to complete the misfortune, a socialist teacher might invite his students in a class on dialectical materialism to go and look at the statue, in order to exemplify the Hegelian List der Vernunft which made even the staunchest of bourgeois economists unwittingly serve the proletarian cause.

8. Ibid., p. 54.
9. Ibid., p. 55.
10. Ibid.

11. For a detailed critique of the capitalist attempt to employ the concept of Pareto optimality in defense of a private property economy, see Maurice Dobb, Welfare Economics and the Economics of Socialism: Towards a commonsense critique.

15. Ibid., p. 64.
17. Ibid., p. 67.
18. Ibid., p. 68.
19. Ibid., p. 123.

21. Joan Robinson, Aspects of Development and Underdevelopment, p. 33. She quotes Keynes's statement that

... the capitalist classes were allowed to call the best part of the cake theirs and were theoretically free to consume it, on the tacit underlying condition that they consumed very little of it in practice. The duty of saving became nine-tenths of virtue and the growth of the cake the object of true religion. (from Economic Consequences of the Peace, 1919, p. 16.)
23. Ibid., pp. 33-4. She earlier remarks:

The problem of the distribution of "national income" and wealth between families that the nation comprises runs deep into the moral confusion at the base of modern Western doctrines. The classical economists took class for granted and treated the needs of subsistence for the "labouring poor" as part of the cost of production of national wealth; the so-called neoclassical doctrines which came into fashion in the West in the last quarter of the nineteenth century, purported to be more humane and democratic--everyone should count for one. The economists were living, all the same, in a class society in which property dominated over work as a source of consuming power and they were trying to represent its operations in a morally acceptable light. Thus, they were caught in a contradiction impossible to resolve. (Ibid., pp. 3-4)


———. *Theories of Value and Distribution Since Adam Smith*. Cambridge: Cambridge University Press, 1973


Kuhn, Thomas S. "Logic or Discovery or Psychology of Research," in Lakatos and Musgrave [1970], pp. 1-24.


