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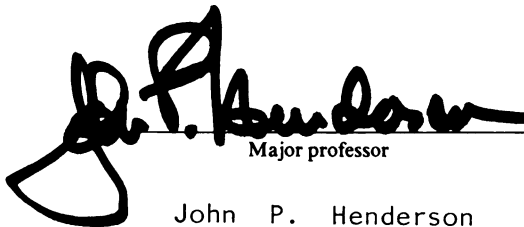
THE TRANSFORMATION OF RICARDO'S PRINCIPLES
THROUGH THE ADDITION OF
THE "ON MACHINERY" CHAPTER

presented by

John Bryan Davis

has been accepted towards fulfillment
of the requirements for

Ph.D. degree in Economics


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THE TRANSFORMATION OF RICARDO'S PRINCIPLES
THROUGH THE ADDITION OF
THE "ON MACHINERY" CHAPTER

By

John Bryan Davis

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ABSTRACT

THE TRANSFORMATION OF RICARDO'S PRINCIPLES
THROUGH THE ADDITION OF
THE "ON MACHINERY" CHAPTER

By

John Bryan Davis

It is generally believed that the addition of the "On Machinery" chapter to Ricardo's third edition of the Principles of Political Economy and Taxation little altered the analysis of the original first two editions. It is argued here that Ricardo's distributional argument was seriously modified by the assumptions made in the added chapter. Distributional conflict between capital and land is replaced by distributional conflict between capital and labor. The initial chapter elaborates the changes the added chapter imposes on the traditional conception of the Principles. The succeeding chapter investigates Ricardo's profit analysis in the original and new contexts. An appendix traces possible sources of Ricardo's philosophical views in the thinking of the British Enlightenment.

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INTRODUCTION

It has generally been believed that the addition of the "On Machinery" chapter to the third and last edition of David Ricardo's On the Principles of Political Economy and Taxation little changed the work's basic analysis of the accumulation process in early nineteenth century England. However, Ricardo's admission - and reversal of his former position - that a relatively permanent technological unemployment might well occur with the introduction of labor-displacing machinery does in fact alter the relationship between landlords, capitalists, and laborers, as well as change the prospects and opportunities for capital accumulation. This study, then, investigates the impact of the added machinery chapter on original distributional conception of the Principles, and argues that this conception indeed was transformed by the added chapter.

Part of the stimulus for this study derives from a critical appraisal of many commentators' methodology of interpretation of the Principles. Recognizing that this work not only went through development in its successive editions, but also itself developed Ricardo's understanding of distribution first put forward in his An Essay on

the Influence of a Low Price of Corn on the Profits of Stock, showing the inexpediency of restrictions on importation, it seems generally assumed that Ricardo's thought evolved smoothly, in the sense that none of the conclusions reached late in his career undermined or were incompatible with ones reached earlier. This sort of path of non-contradictory development, however, must be established through an investigation of possible problems generated in this fashion; it cannot be presupposed, as many commentators on Ricardo's thought seem to have believed.

This study pursues one such potential contradiction between different stages of conception in Ricardo's Principles. It specifically asks whether the third edition's "On Machinery" chapter, in which Ricardo explicitly repudiates elements of his earlier thinking, in fact overturns more of his original distributional analysis than he appeared to have thought. The focus here, it should be emphasized, is upon Ricardo's well-known distributional argument. Little attention is devoted to other major concerns in the Principles, for example, the theory of value, the theory of comparative advantage, the theory of money, etc., each of which this study assumes are relatively independent of the changes investigated in this distributional argument.

There are two parts to the investigation that follows.

In the first chapter, the impact of the added machinery chapter is examined at length. Given the conclusion of this analysis, that Ricardo's distributional conception is indeed transformed in a fundamental manner through the addition of the machinery chapter, it is appropriate to pursue the consequences of the implicit changes in this distributional view. This is done in the second chapter in which Ricardo's theory of profit is considered, first, with respect to the original Principles' conception of distribution and class opposition, and then secondly, with respect to the new conception of distribution which emerges with the added machinery chapter.

That the third edition changes in the Principles permit a second analysis of Ricardo's theory of profit, in the context of the second set of class relationships produced by the changed assumptions of the "On Machinery" chapter, is of great advantage in contributing to an understanding of this theory of profit. In an effort to faithfully reconstruct the logic of Ricardo's residual analysis of profit in the altered framework of the added chapter, this logic is generalized over both the set of class relationships appropriate to the original Principles conception and that second set of relationships appropriate to the third edition view. That is, the same formal residual analysis is applied in each context, so as

to demonstrate the differences in substance derived from the social relationships.

At the same time, the procedure of this part of the investigation casts greater emphasis upon the character of the formal residual analysis common to both contexts. Clearly, those studies of Ricardo's theory of profit not forced from the immediate terrain of the original distributional conception of the Principles lack the opportunity to assess the more abstract character of Ricardo's argument, since they are immersed in the mix of concreteness and abstraction of an argument that has yet to be generalized. Accordingly, besides the contributions of the first chapter below in terms of scholarly appraisal of the addition of the "On Machinery" chapter, this study hopes to contribute to the understanding of Ricardo's specifically Classical conception of the determination of profit.

The framework of this treatment of profit can briefly be introduced as follows. Ricardo's theory of profit depends upon a comparison of sectors of production that are distinguished from one another according to whether all inputs to production of the final output are commodities or not. Capitalists, producing in sectors of production that use only commodities as inputs, that is, outputs of other production processes whose values have been established in the market, exchange their outputs with sectors of pro-

duction that use both commodities with market-established values and goods or services that are not commodities in this sense in producing their outputs. Profit accrues to capitalists as a result of this exchange, when there is a decrease in the extent of the market or exchange with the sector using some non-commodity inputs in production.

In the framework of the first two editions of Ricardo's Principles, the sector using some non-commodity inputs is agriculture or corn production. The input to this production lacking a well-established market value is land, and capitalists in sectors of production using only commodities as inputs successfully increase their residual when the extent of the trade with agriculture is reduced. The prima facie motivation for this analysis is, first, Ricardo's recognition that profits rise when rents fall, and secondly, the claim that land in the early nineteenth century, because of traditional seignorial land tenure, did not possess a well-established market value as a commodity.

In the context of the third edition of the Principles, the sector using non-commodity inputs is that of labor production, that is, the traditional sites of labor supply of the family and supporting community. The input to this production without a market-determined value is that entire set of services carried on in the household and laboring community that are responsible in part for enabling

laborers to exchange their commodity of labor services with those with a demand for labor. The incentives for this analysis are similar to those in the previous case. First, Ricardo's treatment of technological unemployment readily permits the inference that profits rise at the expense of labor's standard of living, when unemployment rises, or the extent of the exchange between laborers and capitalists decreases. Secondly, it is easy to identify a variety of inputs to the production of labor that are not purchased as commodities, in contrast to those inputs that indeed are so acquired.

Generally, then, profit as a residual results from the interaction of those sectors of production that are fully a part of the market and those sectors which are only incompletely a part of it. Aside from the conclusion that profit increases when agricultural or labor production rents are decrease - that is the latter are translated into the former, this treatment of profit is noteworthy for the fact that this process occurs when the extent of exchange between the two kinds of sectors is reduced.

Let us, then, turn to the introduction of the "On Machinery" chapter in the third edition of the Principles. In order to understand the changes that this chapter imposes on the original argument of the Principles, it will

be helpful to briefly survey the conception of the economy Ricardo elaborates in his first two editions. Our focus is the growth of production over time in a society of three classes, landlords, capitalists, and laborers. Agricultural land is limited in extent and quality, while population grows at a constant rate. Since technical progress is insignificant in agriculture in the argument of the first two editions, we will assume that all capital accumulation proceeds through savings of capitalists, and extends production upon the existing ratio of fixed to circulating capital.

Rent is received by landlords and explained by Ricardo as the surplus produce of infra-marginal land, or as the surplus produce resulting from the infra-marginal applications of labor plus implements to land already under cultivation. As the population increases, agricultural production is extended to lesser lands or proceeds more intensively on already cultivated land. The extension of production exhibits diminishing returns, such that formerly marginal agricultural production becomes infra-marginal, and thus earns a rent.

Wages earned by laborers are equal to the commodity cost of reproducing laborers' subsistence. Ricardo allows that the standard of subsistence is historically established and may vary from one country to the next and over time.

The principal component of subsistence is the corn or the wheat grown on domestic land.

Ricardo treats profits as a residual form of income. Capitalists receive the difference between the value of their product and their costs, the chief part of the latter being wages paid to laborers. The rate of profit is determined as the ratio of labor in production beyond that necessary for laborers' subsistence to the labor necessary for production of that subsistence. A uniform rate of profit is established by the free flow of capital between sectors of production.

The uniform rate of profit, however, does not remain constant as population increases in the presence of a fixed supply of agricultural land. As labor productivity declines in agriculture, subsistence become more expensive in terms of the labor time quantity of direct labor and implements required for production of a given quantity of corn, wages rise, and profits are reduced. Rising rents accordingly come to occupy an increasingly larger share of surplus product at the expense of the profit share. In the long run, should this process continue uninterrupted, the profit rate falls until accumulation is halted.

This destination, nonetheless, was not an inevitable one in Ricardo's view. His analysis permitted identification of the obstacles to continued accumulation in a manner

that left little doubt about how they might be overcome.

Thus,

Profits of stock fall only, because land equally well adapted to produce food cannot be procured If, therefore, in the progress of countries in wealth and population, new portions of fertile land could be added to such countries, with every increase of capital, profits would never fall, nor rents rise.¹

Of course "new portions of fertile land" would need to be added from beyond English borders, since England possessed a limited quantity of agricultural land. The system of import duties, then, was a key obstacle to continued capital accumulation, together with landlord intransigence to their reduction.

Technical progress might also permit continued accumulation of capital, since it would enable postponement of the diminishing returns in agriculture. In the Essay on Profits Ricardo had suggested this when he rhetorically challenged landlords' resistance to reduced import duties by likening their tariff position to an opposition to agricultural improvements.² Despite this early recognition of the dual character of the constraint on capital accumulation, however, it cannot be said that the technical improvements anticipated played the same role in the first two editions of the Principles as did reduction of import duties. Ricardo not only devotes comparatively more discussion to the reduction of import duties, but, also, he

only initiates a careful investigation of technical improvements in the added "On Machinery" chapter. In addition, as will be seen, Ricardo's famous pessimism concerning the prospects for continued accumulation is absent in the added chapter, suggesting that technical improvements ultimately in his view possessed a special role in the accumulation process distinct from that of duty reductions. Let us, then, turn to the analysis of the added machinery chapter.

FOOTNOTES

1. The Works and Correspondence of David Ricardo, edited by P. Sraffa with the collaboration of M. H. Dobb, 11 Volumes, (Cambridge: Cambridge University Press, 1951-1973), Vol. IV, p. 18.

2. Ibid., p. 41.

CHAPTER I

RICARDO'S MACHINERY CHAPTER

The Editions of the Principles

When a work appears in more than one edition, with each new issue adding modifications and refinements to the work's original argument, the opportunities for its critical evaluation are enhanced. The examination of changes made as a consequence of the author's perception of readers' reactions suggests weaknesses detected in the original argument from both the author's and readers' points of view. Later editions are accordingly the occasion for clarification and sharpening of the argument on the one hand, but on the other hand as often the occasion for its redirection and adjustment in ways that often compromise the author's original intent and conception. Thus, should the initial reasoning of a work be flawed, or should events and historical developments undermine that reasoning, the author decided upon its re-issue may find certain discussions and positions in need of reformulation or indeed minimization, should adequate treatment go beyond the framework of the existing arguments and categories of the work. That much of this re-assessment

believed necessary may be only imperfectly grasped in all its ramifications by the author complicates the critical evaluation of the work issued in multiple editions.

In the case of the three editions of Ricardo's Principles, the opportunities for evaluation of the basic distributional argument rest upon a comparison of the first two editions with the third, since little changes between the first two editions, either with respect to this argument or in connection with related positions, while considerable change occurs with the appearance of the third. In sending the revision of edition one to his publisher, Ricardo had asserted that it contained "a very few trifling alterations," and in writing to Say he had said that in the second edition there was "nothing new."¹ Sraffa states that the only change of note in the second edition was "the subdivision of the chapter On Value into sections each carrying its own heading," and that "it is surprising how little rearrangement was made."² By contrast, the third edition reflected clarification or modification and some significant redirection of the Principles of the first two editions.

The former was pursued with respect to the difficult first chapter on the nature of commodity value. Ricardo had written Malthus in September 1820, more than eight months prior to the May 1821 release of the third edition,

I have been looking over my first chapter, with a view to make a few alterations in it before the work goes to another edition. I find my task very difficult, but I hope I shall make my opinions more clear and intelligible.³

These changes principally concerned the characterization of an invariable measure of value, whose function was to permit a determination of social product invariant to changes in the division of that product.⁴ Ricardo thus expected to be able to maintain his distributional analysis intact, essentially as it was originally developed in the Essay, and sought to refine the first chapter treatment of value, so that the application of this analysis to the multi-commodity context would be without question. In correspondence to Trower and McCulloch, Ricardo accordingly stated that he believed the Principles little altered with these reformulations.⁵

Clarification was also pursued in the third edition of the Principles in light of Ricardo's study of Malthus' Principles of Political Economy which had appeared in 1820 after Ricardo's second edition. In the process of writing his "Notes on Malthus' Principles of Political Economy" (which he left unpublished), Ricardo made a variety of minor alterations for the third edition, in order to forestall both explicit and implicit criticisms advanced by Malthus. For example, Ricardo now argued that technical improvements in agriculture would be "ultimately of immense advantage to landlords," though in the short run rents would still be

lowered.⁶ However, these alterations were not of any particular importance for the basic distributional argument of the Principles.

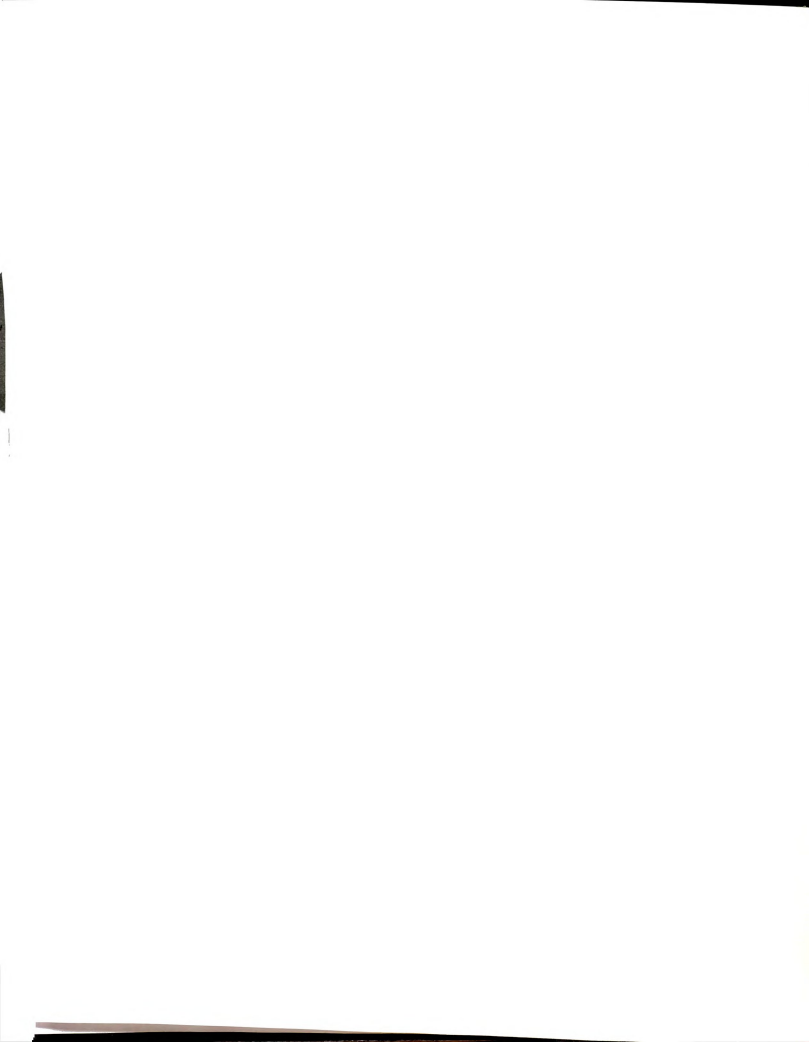
Significant redirection of the Principles, in contrast, occurred in connection with the introduction of an entirely new thirty-first chapter, "On Machinery," concerning the impact on the employment of labor from the substitution of machinery for labor in production. In the first place, Ricardo is quite aware that the admission that he now makes, that machinery introduction results in technological unemployment, is significant for the understanding of the laws which determine distribution. As will be seen below, Ricardo's new position is based upon a recognition of differential changes in a society's net and gross income, the former being the source "from which landlords and capitalists derive their income," and the latter being "that upon which the labouring class mainly depend."⁷ In the second place, Ricardo's new position is explicitly presented as a retraction of his former view on the impact of machinery introduction upon the laboring class. "It is more incumbent upon me to declare my opinion on this question, because they have, on further reflection, undergone a considerable change"⁸ Moreover, what Ricardo specifically comes to conclude in the added chapter is that the laborer's situation is worse with the introduction of machinery. "I am convinced, that the substitution

of machinery for human labour, is often very injurious to the class of labourers."⁹ This, then, clearly is of some significance for Ricardo's understanding of the laws which determine distribution, the extent of which requires further elaboration.

Yet, as will be argued below, Ricardo himself apparently did not fully grasp the degree to which his original distributional conception was affected by the addition of the new chapter. This is perhaps not surprising given the complexity of the issues surrounding machinery introduction, combined with the fact that political economists in Ricardo's time had yet to devote much attention to the issue. What is surprising, however, is that most readers of Ricardo, though often much interested in the questions raised by the added chapter, have devoted so little attention and analysis to the impact of the chapter on the basic distributional argument attributed to Ricardo. Few, that is, have even asked whether technological unemployment affected the class alignments Ricardo projected. Let us briefly consider the history of critical reflection on the insertion of this chapter in the Principles' third edition.

Critical Evaluations of the New Chapter's Addition

Those who have investigated the new thirty-first chapter of the third edition have for the most part not pursued



the question of the compatibility of the chapter's analysis with the distributional argument of the Principles. Yet this appears a quite natural matter to pursue, since the retraction of the chapter *prima facie* revises at least some elements of Ricardo's account of one of the three classes treated in his tightly integrated distributional conception. Moreover, that the added chapter is placed in third part of the Principles after the chapters on taxation is itself important, since the chapters there amount to a number of unconnected commentaries on existing doctrines in political economy, and were written by Ricardo after his completion of the first seven chapters which present the main distributional argument. Thus, Ricardo's decision to include his new treatment of machinery in this part of the Principles is indicative of his own view of its relation to the principle part of his work.¹⁰

Ricardo's immediate followers - James Mill, Robert Torrens, and John McCulloch - on the whole ignored the new chapter of the third edition or simply argued Ricardo's case to have been unrealistic. Mill seems never to have commented upon it at all in print. Torrens thought the numerical example Ricardo developed did not reflect any actual circumstances: "The case supposed never yet occurred."¹¹ McCulloch, who had earlier defended the possibility of technological unemployment of labor to Ricardo after re-

viewing John Barton's Observations on the Circumstances which Influence the Condition of the Labouring Classes of Society of 1817, and who had subsequently been persuaded by Ricardo to deny that possibility, was unwilling to follow the new analysis of the third edition of the Principles. "I will take my stand with the Mr. Burke of the American war not with the Mr. Burke of the French Revolution - with the Mr. Ricardo of the first not of the third edition."¹² In McCulloch's own Principles of Political Economy of 1825, Say's Law of Markets was applied to the labor market to conclude that the impossibility of general over-production of commodities produced implied there could not be a general over-supply of labor. In effect, a rigid association between purchasing power and the quantity of output is assumed, as well as between that quantity of output and the quantity of employment.¹³

Thus, when Ricardo himself proposed discussion of the machinery question in 1821 at the Political Economy Club, it is not surprising that there was little enthusiasm for an investigation of the question. Perhaps some of this reaction can be explained in connection with the fact that only ten years later there was a general decline in support for almost all of Ricardo's positions, as evidenced by a proposed discussion at the Political Economy Club on the question "whether any of the principles first advanc-

ed" in Ricardo's work were "now acknowledged to be correct."¹⁴ While there is considerable debate over the explanation of the decline in status of Ricardian economics after Ricardo's death, it cannot be denied that the impetus the Principles' labor value analysis gave to the radical Ricardian socialists¹⁵ could easily have been supported by the conclusions of the third edition machinery chapter, thus making the issue of technological unemployment one to be studiously ignored or even suppressed by political economists anxious to dissociate themselves from anything connected to the Luddites or their causes.

Perhaps symptomatic, then, of the lack of serious attention devoted to the issue by those more or less deservingly labeled Ricardians is John Stuart Mill's own ambivalent discussion. In his Principles of Political Economy, Mill first asserts,

All attempts to make out that the labouring classes as a collective body cannot suffer temporarily by the introduction of machinery, or by the sinking of capital in permanent improvements, are, I conceive, necessarily fallacious.¹⁶

Yet only a page later Mill discounts the empirical significance of this possibility by adding,

Nevertheless, I do not believe that, as things are actually transacted, improvements in production are often, if ever, injurious, even temporarily, to the labouring classes in the aggregate.¹⁷

Thus, though analytically Ricardo's case is allowed, Mill,

rather than investigate its potential consequences for the understanding of distribution, simply sets it aside. The verdict of the last of the Ricardians, then, is in fact no verdict at all, and truly critical commentary on Ricardo's system comes only from those contemporaries of Ricardo that were not sympathetic to him.

A number of these latter figures early on claimed that technical progress in agriculture reversed diminishing returns, and so left Ricardo's distributional projections without foundation. Thomas Buller's A Reply to a Pamphlet by David Ricardo, on Protection to Agriculture of 1822, Joseph Lowe's The Present State of England of 1823, Thomas Perronnet Thompson's Catechism on the Corn Laws; with a List of Fallacies and Answers as well as his The True Theory of Rent, in Opposition to Mr. Ricardo and Others both of 1826, Richard Jones' Essay on the Distribution of Wealth of 1831, and George Porter's Progress of the Nation of 1836 each focused on Ricardo's conviction that diminishing returns in agriculture presented the one exception to general gains from technical progress. Yet these critiques did little more than suggest where Ricardo was mistaken, and they did little to replace the distributional conception of the Principles with anything different. Particularly, they also did not investigate the significance of machinery introduction in any broader

social framework.

The one figure of the nineteenth century who was indeed interested in the added machinery chapter of Ricardo's third edition was Karl Marx. Marx, outside of the English Classical tradition of political economy, was well aware that the new chapter transformed certain basic assumptions operating in Ricardo's thinking, which he had analyzed extensively in his own Theories of Surplus Value, Part II. In particular, Marx focused on the question of unemployment, arguing at length that the re-employment of those displaced from production by machinery could not be expected to come about in any systematic fashion, as suggested by McCulloch and others in what Marx called the theory of compensation. Thus, criticizing the optimism implicit in Ricardo's discussion, Marx emphasizes the contingent character of the re-absorption of labor:

by no means does a necessary connection exist between the revenue that has been set free and the workers that have been set free of revenue.¹⁸

For Marx, capitalist production involves a constant race between the process of labor displacement through technological unemployment and a relatively independent process of labor re-absorption through accumulation. Marx, thus, was sensitive to the need to formulate a population law distinct from the Malthusian principle which Ricardo had adopted, and did so in his own reserve army of labor

analysis. Indeed, it might be argued that much of Marx's own thinking in Capital stems from his investigation of questions only raised by Ricardo in this connection.¹⁹ For example, Marx's account of the falling rate of profit is derived from an account of the continued replacement of labor by machinery (the rising organic composition of capital). Accordingly, in turning below to the discussion of Ricardo's distributional conception, some attention will be given to the question of the Malthusian population law, as suggested by Marx.

In the tradition of post-Ricardian marginalist economics, Alfred Marshall made serious study of Ricardo's thinking, in the process defending it against those such as William Stanley Jevons who believed it entirely without merit.²⁰ Marshall, however, was mostly interested in rescuing Ricardo from total neglect, and consequently, he devoted most of his commentary to the argument that Ricardo did in fact operate from a supply and demand perspective, investigating the cost of production supply side of the economy at greater length only because it was less straightforward than the relatively simple utility demand side. While Marshall also made a study of the relationship between diminishing returns in agriculture and improvements as Ricardo characterized them,²¹ his interest here was not directed to how the Ricardian system itself

was affected, but rather to a careful statement of the relationship between the diminishing marginal productivity of a continuously variable factor and technical improvement.

Indeed, Marshall's perspective is characteristic of much of the treatment received by Ricardo from subsequent economists of the marginalist tradition. Their interest in Ricardo has generally been confined to the examination of his discussion of substitution, and then not from his own Classical orientation, but from that of modern general equilibrium theory. Three prominent figures in this respect are Knut Wicksell, Friedrich von Hayek, and John Hicks.

Wicksell²² recognized that the implicit wage fund theory of Ricardo's added chapter was not consistent with the account of substitution of fixed capital for circulating involved in machinery introduction. The demand for labor depended upon the relative prices of labor and machinery in this analysis, but according to a wage fund theory it could only depend upon the amount of capital set aside for labor and raw materials. Thus, Wicksell pointed towards a complete marginal productivity analysis, in which productive factors were to be remunerated in terms of their marginal products. This implied fully flexible wages, which while acceptable within the

framework of marginalist thinking, were foreign to the Classical conception that tied wages to subsistence.

Hayek, in his Profits, Interest, and Investment of 1939, described the substitution between machinery and labor in Ricardo's Principles as "the Ricardo effect," and went on to detail the changes in relative commodity prices associated with such substitution in terms of their capital-intensive or labor-intensive character. Here, however, his interest was in changes in the real wage of labor, whereas Ricardo sought to explain not a change in the level of subsistence, but rather a change in the money wage resulting from higher corn prices. Accordingly, Hayek's famous use of the expression, "the Ricardo effect," really involves a non-Ricardian set of questions, and explains little about what concerned Ricardo in the added machinery chapter.²³

Hicks, though still primarily interested in general equilibrium issues, has devoted some thought to an aspect of the machinery question that was central to Ricardo's own treatment, that is, technological unemployment. In his Theory of Economic History he constructs a Ricardian type model involving short run reductions in both output and employment.²⁴ He allows, that is, that technological unemployment may well occur, and investigates the manner in which re-employment may come about. However, Hicks'

treatment is distinct from Ricardo's in that reduced employment and output is explained by a period of machine construction that is labor-intensive, so drawing laborers from production of current goods. At a later point in time, output and employment return to or exceed previous levels. Ricardo's analysis, as will be seen below, involves an immediate fall in employment due to machinery introduction - not construction. More importantly, nothing in Hicks' analysis raises questions about Ricardo's original arguments, the intent being not to examine Ricardo, but rather to give one analysis of technological unemployment in an historical study granting its existence.

In contrast to the marginalist tradition, the more recent Cambridge, England post-Keynesian or indeed perhaps more appropriately neo-Ricardian tradition devotes naturally more attention to Ricardo's own framework and positions. With respect to the machinery chapter, both Luigi Pasinetti and Piero Sraffa have made judgments about the impact of the discussion on the Principles.

Pasinetti focuses on the mathematical consistency of Ricardo's thinking in the original distributional argument of the Principles, setting forth the first complete model of its statics and dynamics. In Pasinetti's view, Ricardo's model is mathematically determinate as

long as all sectors of production use fixed and circulating capital of the same durability and in the same proportions.²⁵ Yet this can no longer be the case in the context of the added chapter when substitution of fixed for circulating capital occurs at different rates from one sector to the next, and thus Pasinetti takes the chapter to represent Ricardo's frank acknowledgement of the mathematical "limitations of his theory." He does not, however, pursue the nature of these "limitations," nor begin to explain how Ricardo's thinking might be transformed either quantitatively or qualitatively.

Sraffa, responsible for the scholarly preparation of Ricardo's works and thus one of the most knowledgeable of the commentators on Ricardo, asserts that the added chapter of the third edition of the Principles is the "most revolutionary change in edition 3," but does not explain why he believes this to be so. Some suggestion is made in this direction in a note claiming "a gradual shift of emphasis from the antithesis of rent and profits to that of wages and profits."²⁶ Thus, though the significance of the chapter is allowed, little analysis of its specific impact is available, as from Pasinetti.

Finally, the continued development in recent years of the history of economic thought as an area of specialization for scholars has produced a number of studies of

Ricardo's thought which go some distance towards evaluating his work within its own framework. Three individuals are of particular importance in this respect: Joseph Schumpeter, Mark Blaug, and Samuel Hollander. Each has a carefully constructed analysis of Ricardo's thinking that addresses the issue of the addition of the machinery chapter to the third edition of the Principles.

Schumpeter's treatment in his comprehensive History of Economic Analysis possesses two related dimensions. In the first place, he argues that Ricardo should be understood to have seen technological unemployment as temporary, since the re-employment of labor represents a second set of events that follow from labor's displacement, the forms of re-employment representing "not exceptions to his argument but result logically from it, if it be continued beyond the point reached in the numerical example."²⁷ Consequently, in contrast to Marx's view, for Schumpeter it is Ricardo, rather than McCulloch, James Mill, Torrens, Nassau Senior, or J. S. Mill, that is said to be the author of the theory of compensation. This interpretation, however, cannot be correct, because Ricardo put forward his analysis specifically to explain labor redundancy, while McCulloch and the others denied from the outset that labor could find itself technologically unemployed for any period of time. Schumpeter's view, then, mis-reads the immediate reaction

to Ricardo's work among those termed Ricardian.

Secondly, Schumpeter sees the entire dispute over labor redundancy to have issued from the inadequate wage fund method of analysis peculiar to the Classics. In his view, the controversy "vanished from the scene as a better technique filtered into general use which left nothing to disagree about."²⁸ That is, when the analytical principle of substitution between factors of production became fully appreciated, it would be clear to all that technological unemployment could not persist - thus there would be "nothing to disagree about" - since relative factor price movements would leave all factors fully employed. This argument, recalling Wicksell, neglects again the fundamental differences that exist between the Classical and modern general equilibrium approaches. As was pointed out some years ago, indeed before Schumpeter's History, the understanding of unemployment differs between the Classical and modern general equilibrium or neoclassical approaches. Specifically, Ricardo's

"long-run" equilibrium concept was different from the later, neo-classical one, denoting not equilibrium as worked out for a given quantity of factors available, but rather the terminating point of a process in which the rise or fall of the supply of labor and the changes in the current rate of capital accumulation adjusted both prices and factor remuneration to their "natural" level.²⁹

Thus in Classical theory unemployment can exist when not all of those displaced are able to find employment at the

"natural" wage. Whether wages are sufficiently flexible to permit marginal products and wages to equilibrate is consequently irrelevant, and therefore Schumpeter is in error in suggesting that the problem of technological unemployment vanishes with the appearance of a new technique of analysis. Indeed, this suggestion is at best a normative one, since it implies that a state of affairs said to obtain in actuality by Ricardo ought not to obtain if conceived of differently, namely, in terms of considerable ease of substitution between factors of production on any occasion. Ricardo, however, was not interested in measuring reality by technique, but rather in understanding the reality of distribution by whatever technique was most appropriate. This is demonstrated in the added machinery chapter where Ricardo's earlier positions are candidly abandoned in the retractions expressed there.

Mark Blaug is one of the few modern historians of economic thought to assert that the addition of the machinery chapter to Ricardo's Principles seriously affected the argument present in the first two editions. In his Ricardian Economics, he claims

Ricardo never integrated his revised views on the machinery question with the rest of his analysis and it is difficult to decide what significance he ultimately attached to them.³⁰

Blaug goes on to suggest that the machinery chapter "opens up a whole series of unanswered questions about Ricardo's

system." Indeed he points out that increases in money wages that are accompanied by more than proportionate decreases in employment imply a falling relative share of the social product for labor. More generally, "the same factors which tend to raise labor's money share in the absence of technical change ... tend also to produce the kind of improvements which counteract this effect." Blaug thus begins to follow out the consequences of the addition of the machinery chapter to the Principles, and realizes that the conclusions of the chapter disrupt Ricardo's existing distributional conception. However, he does not carry this investigation beyond suggestions. Perhaps in his view so much of this conception would need to be abandoned that it would be unilluminating to carry through the analysis. Thus, about Ricardo, Blaug adds:

It is not surprising that he failed to carry through with the analysis; for to have done so would have vitiated the simple model he had constructed to convey the undesirable consequences of the corn laws.³¹

It is true that much might need to be set aside, but it is nonetheless important to discover how Ricardo's treatment of distribution would alter, since he investigated an actual system of distribution in an economy and society not entirely dissimilar from that currently existing. Moreover, an understanding of the modern system of distribution depends in part on a comprehension of its

genesis, and this may be better explained when a clear account of political economists' efforts at re-adjustment of their thinking in response to perceived changes in the world is accomplished.

Hollander's main focus in his treatment of Ricardo on machinery introduction is the links and differences between Ricardo and John Barton, as well as the timing of Ricardo's change of position. While Ricardo can be shown to have accepted much of Barton's analysis in the original Principles, Hollander argues, his analysis of the sudden conversion of circulating capital to fixed is novel and distinguishes the third edition of the Principles. Moreover, in Hollander's view, Barton had not considered this case, so that Ricardo's contribution is an original one. Finally, Ricardo seems to have changed his position after writing his "Notes on Malthus," in contrast to Sraffa's view that there are hints of the new position in the "Notes."³²

The thrust of Hollander's discussion of the machinery chapter is to be found in his characterization of the case of sudden conversion of circulating capital to fixed as an exceptional one.

The extended analysis of machinery in the Principles and its defence in the correspondence helps us understand Ricardo's method of procedure. It suggests that in setting out the initial case in wage-fund terms the object was to

devise the simplest conceivable arithmetical illustration for pedagogical purposes, to illustrate a principle by means of a 'parable.' When obliged to spell out the precise operation of the economic process Ricardo recognized that the parable was an inadequate representation.³³

The spelling-out of the economic process is charted by Hollander through Ricardo's correspondence with McCulloch subsequent to the publication of the third edition. Here Ricardo allows that the reduction in output and employment resulting from machinery introduction is seen to occur in wage goods sectors rather than those sectors in which new technology is actually introduced. The effects then are industry-wide in that the reduction in demand for labor in the sector with more machinery leads to a reduction in laborers' demand for wage goods, which accordingly contracts. The simple "arithmetical illustration" employed by Ricardo, however, short circuits this sort of interdependency, because of its reliance upon the notion of capital as a wage fund. In contrast, Hollander suggests, the more complicated understanding of the economic process which is to be found in the correspondence indicates an intimation on Ricardo's part of a system of general equilibrium that transcends the wage fund notion.

This approach follows the general presuppositions that operate in Hollander's reading of Ricardo. In his "Introduction" to The Economics of David Ricardo, Hollander warns the reader that he rejects the view that nineteenth century

political economy reflects a "dual-development" that distinguished general equilibrium analysis from a characteristically Classical approach relying on the dichotomization of distributional and commodity prices. For Hollander, however, these are "inextricably intertwined," and the alternative approach a mis-reading of Ricardo: "But in any event it is my belief, which I shall justify in the course of this work, that this corpus of interpretation is unacceptable."³⁴

In the context of machinery introduction, then, it is important to conceptualize the substitution of machinery for labor in the framework of a general equilibrium. Specifically, in a general equilibrium there can be no permanent unemployment, so that it is necessary to read Ricardo as emphasizing re-employment equally with the expulsion of labor from production. In this respect, Hollander makes use of Ricardo's adherence to Say's Law of Markets. Allowing that Ricardo relied on Say's Law for defense of his profit analysis to Malthus, Hollander adds,

it also played a central part in the analysis of adjustment to change (such as technological progress that expels factors from particular sectors or legislative intervention that attracts factors into particular sectors) and is conspicuous in the structure of equation defining general equilibrium.³⁵

By Say's Law, that is, those displaced by technical progress must find employment elsewhere. Indeed in his dis-

cussion of Say's Law later in The Economics of David Ricardo, Hollander cites Ricardo's views expressed in Parliament in 1819 on the nature of the post-war depression, and states:

Given the presumed temporary nature of the disturbance and the processes of corrective resource allocation at work, Ricardo was prepared to assume a state of full employment in the course of his policy pronouncements.³⁶

Any unemployment resulting from machinery introduction, that is, must be conceived of as temporary or 'frictional' in the modern sense of the term.

Yet, this interpretation does not stand up well upon a frank reading of the added machinery chapter. There, as will be seen, Ricardo claims his former positions mistaken, and asserts that unemployment of labor is possible. Certainly, it should be emphasized, if Hollander is correct, Ricardo must have allowed there to be temporary unemployment prior to the retractions expressed about unemployment in the added chapter. Therefore, the position of the chapter must amount to something more than a characterization of the 'frictional' sort. Indeed, nowhere in the chapter does one find any guarantee from Ricardo that all of those displaced will ultimately be returned to employment. Thus, the reference to views of 1819, two years before the publication of the third edition, should not be taken too seriously in the evaluation of the added chapter.

Whether or not Ricardo's numerical example should be regarded as a special case, then, is not clear from Hollander's arguments. This would depend upon whether Ricardo can be understood to have operated on all occasions from a general equilibrium, resource allocation perspective. Yet, irrespective of what might be concluded on this matter, the general view that Ricardo possessed the same theoretical conception throughout his work forestalls any investigation of a disruptive impact that might be present in the third edition's added machinery chapter. Hollander, that is, like many other commentators, assumes an absence of conceptual development in Ricardo's thinking that may reflect contradictions rather than smooth progress. It is the former, however, which must be considered before the latter can be claimed. Moreover, it is the more awkward development of an individual's thought that displays best the limitations and possibilities in a work passing through multiple editions. Let us turn, then, to Ricardo's original system of understanding, in order to be able to determine whatever departures from it may appear in the added chapter.

Theoretical Foundations of Ricardo's Original View

Ricardo's original conception was outlined above. We are concerned with a model assuming land limited in quality

and quantity, insignificant technical progress in agriculture, and an absence of international trade in corn in virtue of corn duties. With the growth of population and attendant capital accumulation, according to the theory of differential rent, cultivation is extended to inferior lands, and increases the share of rent in the social product. Though real wages are essentially constant, money wages as well as the share of wages in the social product rise, reducing thereby the profit rate and the share of profits in the social product. As the rate of profit approaches zero, incentives to further investment are lost and the economy settles into the stationary state of no growth.

This bare outline of Ricardo's distributional conception, however, is incomplete without an examination of the philosophical and methodological bases upon which its components rely. Indeed, without closer consideration of Ricardo's theoretical presuppositions, it is not possible to fully evaluate the impact of the added machinery chapter on the Principles. As will be argued, Ricardo's inability to grasp the full significance of his admissions in the new chapter can be interpreted to derive in good part from his inability to comprehend the role his theoretical presuppositions played in his original distributional

conception. What are these presuppositions then?

Fundamental to Ricardo's thinking is his philosophical naturalism or the thesis that the laws of political economy are ultimately given by nature. Implicit in this view is a suppressed dichotomy between society and nature, since the reduction of ostensibly social phenomena to natural conditions requires that nature be regarded as independent of society. The dichotomy is concealed through the view that society is ultimately or essentially natural, so that any distinctively social features of the world are apparently incapable of formulation apart from nature. Yet this view at the same time serves to identify distinctively social phenomena through contrast with the distinctively natural, namely, that which is unchanging and not subject to human transformation. The distinctively social, then, is that which is susceptible to human transformation, particularly that recorded as fundamentally historical in character.

Ricardo, it must be emphasized, denied political economy possessed any fundamentally historical or distinctively social dimension, since he conceived of the laws of political economy as unchanging and timeless or ahistorical.

"The real laws of political economy do not change."³⁷ Thus the social world is ultimately governed by laws of nature, which once identified and described permit an analysis of the laws regulating distribution, and accordingly, not the

historical, but rather "the natural course of rent, profit, and wages."³⁸ The Principles, then, formulates the long run tendencies of the economy, because it is only within this temporal framework that the laws of nature can clearly be exhibited, free of the short run or temporary disturbances, which, if misperceived, might seem to be counteracting. Ricardo emphasized this perspective in distinguishing natural and market prices:

Having fully acknowledged the temporary effects which, in particular employments of capital, may be produced on the prices of commodities, as well as on the wages of labour, and the profits of stock, by accidental causes, without influencing the general price of commodities, wages, or profits, since these effects are equally operative in all stages of society, we will leave them entirely out of our consideration, whilst we are treating of the laws which regulate natural prices, natural wages, and natural profits, effects totally independent of these accidental causes.³⁹

Here Ricardo dismisses "temporary effects" on the grounds that they "are equally operative in all stages of society." That is, history does not reflect human transformation of the laws of political economy, because the departures from natural laws are in effect randomly common to all periods. Indeed, the characterization itself of that domain not encompassed in the natural world as "accidental" reflects Ricardo's postulated naturalism. Quite simply, Ricardo most likely never imagined that the laws of political economy could possess any other methodological basis than that

representable in terms of unchanging nature.

At the same time, natural laws are characteristically abstract, and capable of deductive manipulation in a chain of syllogisms that need no revision in light of concrete historical developments, experimentally or inductively described.⁴⁰ Thus, Ricardo's method of abstract analysis provided his work with an imposing formal consistency that Smith's less cohesive and often contradictory though more concrete investigations lacked. Accordingly, were Ricardo's foundational set of natural laws on the whole accepted by his readers and critics, dispute and disagreement would inevitably tend toward formal questions of consistency - a terrain upon which Ricardo was quite skilled - and away from more substantial issues of the interpretation of social reality itself. It is in this respect that the extensive debate between Ricardo and Malthus can advantageously be examined, since considerable agreement between the two existed concerning two natural laws crucial to Ricardo's distributional conception. In particular, Ricardo took over from Malthus both the law of population and the law of the diminishing fertility of the soil. Since the former was biological and at most modified by characteristically social activities, for example, the moral decision to abstain from sexual relationships, and the latter was physico-chemical and entirely independent of human affairs,

Ricardo's adoption of these natural principles seriously compromised Malthus' opportunities for resisting the ultimate Ricardian distributional conclusions with which he was so much in disagreement.

Thus, in the debate over the analysis of the Essay, the dispute over the determination of the profit rate in agriculture did not turn on the determination of wages or the treatment of rent, since both accepted the same principles requisite for determination. Nor did this exchange involve any differences over the manner in which the equal rate of profit was established, insofar as Malthus did not contest Ricardo's Benthamite conviction⁴¹ that the self-interested activity of the individual entrepreneur, essential to the free flow of capital from sector to sector that equalized the profit rate, was an entirely natural element of the social world ("Where there is free competition, the interests of the individual and the community are never at variance"⁴²). Indeed, neither wished to assert that individuals' self-interest, whether it be that of landlords or capitalists, was a source of social conflict, which *prima facie* might then appear non-natural.

Where Malthus and Ricardo did disagree fundamentally was in the analysis of value. As has been ably demonstrated by a variety of students of this debate, as long as agricultural laborers consumed commodities other than corn

the relative price movement of these goods undermined the straightforward distributional conclusions Ricardo desired.⁴³ Malthus was sensitive to this, and it is fair to say that it was his insistence on this point that was instrumental in precipitating Ricardo's value analysis in the Principles. Through the three editions of the Principles and in the papers on absolute value written in his last years, Ricardo struggled with this analysis. In his own view, it may well have seemed to have been the weakest component of his entire distributional conception.⁴⁴ Accordingly, were it possible to convince Malthus about value, Ricardo might have reasoned, the balance of his views would be inescapable.

Recent scholarship on Ricardo's efforts in this regard have revealed important dimensions of his thought. Ricardo apparently confused two questions in his analysis of the key invariable measure of value: "how to find a measure of value which would be invariant to changes in the division of the product" and how to determine the absolute value of commodities through a determination of their respective difficulties of production.⁴⁵ Without exploring this confusion, it can be said that the latter question (which Sraffa abandoned in his solution to the former⁴⁶) reflects Ricardo's conviction that a solid account of value depended upon explaining commodity values

in terms of something 'outside' of the social world of valuation, that is, by something natural. Labor value, then, possessed that natural character in the scientifically constituted, Newtonian physical world of Ricardo's time that invested the simple spatial-temporal framework of labor time and the elementary tangibility of physical activity with the status of basic natural phenomena. Of course all laboring activity across individuals is comparably for Ricardo, since otherwise it would not be possible to explain the value of a commodity by the sheer difficulty of its manufacture, irrespective of the social dimensions of that process. Marx, it might be said, rejected quite consciously this naturalistic treatment of labor value for his own notion of a socially necessary labor time. Ricardo, however, had Malthus for his intellectual sparring partner, and he could not expect to persuade him without grounding his view of value in the very nature of things. Value, that is, had to be explained solely in terms of natural causes.⁴⁷

With such an explanation of value, then, Ricardo would be able to present the laws governing distribution of the social product strictly in terms of the natural distribution of a naturally given quantity of social product. That on account of exchange this product required valuation neither affected the laws determining

distribution, nor the determination of the total value of the social product. That is, the pricing process in distribution and that for commodities' values could be treated separately from one another, because each was a result of independent natural forces, the former deriving from the population law and diminishing fertility (with profit as a residual) and the latter deriving from difficulty of production. Marx, in contrast, rejected this dichotomization from the outset by making labor value a function of distributional struggle over the determination of socially necessary labor time. Ricardo, however, wanted distribution to be naturally determinate, that is, free of the possibility of social or historical transformation. In this way he would be able to chart the "natural course of rent, profit, and wages" by first observing the natural course of the total value of social product to be distributed as it evolved with accumulation.

Yet, an additional principle operated on this evolution of the total social product, namely, technical progress.

Every improvement in machinery, in tools, in buildings, in raising the raw material, saves labour, and enables us to produce the commodity to which the improvement is applied with more facility, and consequently its value alters.⁴⁸

That is, the difficulty of production was reduced, or the "facility" with which it was manufactured improved, with

technical progress. Labor value accordingly fell as labor time was supplanted by the gradual progress of enlightenment about the natural laws of constructing objects of use. Thus, ignoring for the moment the diminishing returns in English agriculture, the advances in labor productivity attendant upon the accumulation of capital and growth of knowledge continually created an ever-expanding abundance of useful goods to be shared the increasing numbers of the population. Indeed, if accumulation and population proceeded at the same pace, technical progress raised the quantity of goods available for all members of society, irrespective of their class location.

This conception, of course, is seriously modified by the diminishing returns in English agriculture. In the case of corn production diminishing returns to inferior land in fact raises corn's labor value, due to the increased labor time necessary to compensate the lesser land. The picture, then, of an ever-expanding abundance becomes unbalanced, as only foodstuffs remain exceptional to the general progress of the wealth of society. Specifically, technical improvements are insufficient in this sector (though they nonetheless occur⁴⁹) to outweigh diminishing returns. The latter is at best "checked at repeated intervals by the improvements in machinery ... as well as by discoveries in the science of agriculture."⁵⁰

Ricardo's entire system of thought, however, would not be understood if it was not recognized that the cause of rising corn values, or the inability of technical progress in agriculture to overcome diminishing returns, is the interference in the free market imposed by the landlords' corn laws. In the absence of the corn laws and with free trade in corn, the value of corn would fall with technical progress, just as the value of any other commodity. Moreover, the imbalance present in this process of accumulation under the constraint of the corn laws is indeed sufficiently serious to altogether reverse the prospect of an ever-increasing abundance, and instead issue in that of stagnation and misery as capital accumulation halts in the dread stationary state. Ricardo, then, boldly declares the interests of capital and labor to be opposed to those of the landlord class. Since rents are not a source of accumulation, landlords consume ever-increasing amounts of the social product at the expense of laborers and capitalists.

This state of affairs, it should be emphasized, is an unnatural one in Ricardo's view. That is, because of social interference in the distributional process, the natural forces at work in the economy do not produce the growing abundance that makes all better off. In that ideal condition, moreover, since there is continually more soc-

ial product to be distributed, all are always better off without sacrifice on any individual's part. More generally social conflict is absent, either between individuals or classes. In contrast, with the corn laws social conflict mounts to the level of class antagonism, and the onset of stagnation places society in conflict with nature itself. Quite simply, because of the landlords' interference with the natural process of distribution and accumulation, the natural world, of which society is a part, is disrupted and literally perverted in its design.

Revoking the corn laws, finally, would usher in the harmony of society not in conflict with itself or the natural forces guaranteeing abundance and wealth. In particular, the rational capacity for the investigation of nature that distinguishes human life from animal would permit the ever better manufacture of objects of use in the form of technical improvements in production. For Ricardo, the policy of laissez faire possessed deep foundations in the nature of things, such that were it to be exercised consistently the best of all possible worlds would be achieved. This conception, however, is overturned in the third edition of the Principles when technical progress assumes a new dimension. Let us first examine the analysis itself of the new thirty-first chapter.

The Analysis of the New Chapter

Ricardo's added chapter, "On Machinery," is divided into two parts, neither of which is titled nor otherwise identified. The first part⁵¹ opens with Ricardo's declaration that his opinion has "undergone a considerable change" on the question of the impact of machinery introduction, and is followed by a detailing of his abandoned position that ends with a statement about what he now perceives to be the correct characterization of the condition of the laborer. The discussion proceeds via an analysis of the differential movements of a society's gross and net incomes that is argued by a numerical example of a single farming capitalist's construction and consequent introduction of a new piece of machinery. It concludes with a qualification concerning savings from revenue and a four point summary. The second part⁵² opens with recommendations for re-employment of displaced labor and adds a warning about an analogous displacement "when the labour of horses is substituted for that of man." It proceeds by distinguishing the case examined in the first part from the more gradual introduction of machinery involved in increasing the proportion of fixed capital in accumulated savings. The second part and the chapter conclude with a final warning that the State should never discourage the introduction of machinery.

Any discussion of the added chapter must focus upon the change in Ricardo's thinking brought about by the new analysis. In the first place, Ricardo himself believed it was necessary that he present the new treatment, because in his own view he had earlier been mistaken about the impact of machinery introduction. Indeed he asserts,

although I am not aware that I have ever published any thing respecting machinery which it is necessary for me to retract, yet I have in other ways given my support to doctrines which I now think erroneous ...⁵³

The "other ways" Sraffa suggests primarily refer to a Parliamentary speech in 1819 concerning Robert Owen and the impact of machinery on the demand for labor.⁵⁴ Accordingly, that Ricardo himself thinks he must announce his changed position, though none of his published works ever raise the question of the impact of machinery on labor, implies that the new view is especially important in his own estimation. Secondly, however, as in the case of any retraction or reversal of a position, it is important to establish whether the resulting analysis is compatible with the whole of the thinking originally containing the abandoned position. It is this issue that has on the whole gone unexamined in the literature on Ricardo, although it raises fundamental questions about the nature of his thinking as a whole. Since Ricardo's theoretical presuppositions were examined briefly in the previous section,

in this section it will be possible to investigate not only the effect of the new position upon the basic distributional conception of the Principles, but also the degree of consistency of the new position with the theoretical presuppositions of this conception. Let us turn to the reasoning of the added chapter.

At the outset, Ricardo disavows his previous opinion that each of the three main economic classes of society would benefit by the "application of machinery to any branch of production." Formerly, he had believed that the introduction of machinery in any branch of production had the effect of saving labor in that branch, while at the same time permitting all those displaced to find employment elsewhere, "with that portion of inconvenience which in most cases attends the removal of capital and labour from one employment to another."⁵⁵ That is, Ricardo argued,

as the capital which employed them was still in being; and as it was the interest of those who had it to employ it productively, it appeared to me that it would be employed on the production of some other commodity⁵⁶

The consequence, thus, was that each of the three classes would benefit by lower prices or values for commodities produced with more machinery, since a "reduction of price could not fail to be the consequence of the employment of machinery."⁵⁷ However, rather than continuing to believe

"that the labouring class would, equally with the other classes, participate in the advantages, from the general cheapness of commodities, arising from the use of machinery," Ricardo now asserts that

the substitution of machinery for human labour is often very injurious to the interests of the class of labourers,⁵⁸

because labor might be permanently displaced from employment by that introduction.

Ricardo goes on next to explain this technological displacement of labor in terms of the differential movements of a society's gross and net incomes. Originally, in the earlier editions of the Principles, he had held that when a society's net income increased, so also did its gross income in the same degree.

I, now, however, see reason to be satisfied that the one fund, from which landlords and capitalists derive their revenue may increase, while the other, that upon which the labouring class mainly depend, may diminish, and therefore it follows, if I am right, that the same cause which may increase the net revenue of the country, may at the same time render the population redundant, and deteriorate the condition of the labourer.⁵⁹

Net income or revenue, then, might increase, while gross income declined. In order to demonstrate this, Ricardo produced a numerical example in which a single farming capitalist introduces a piece of labor-saving machinery. He calls this example "the most simple that I could select,"⁶⁰ and thus presumably the most solid demonstration

he thought possible.

The farmer's entire capital of 20,000 pounds sterling is annually divided between circulating and fixed capitals, such that respectively 13,000 is employed in the support of labor - when each year the capitalist sells the 13,000 worth of food and necessities to his laborers, paying them wages of the same amount - and 7000 is invested in buildings, tools, etc. Since the total capital is 20,000, a rate of profit of 10 percent requires a total profit of 2000 per year. This is achieved by having the laborers produce a total output (in food and necessities) of 15,000 each year, thus leaving the 2000 after the 13,000 circulating capital is replaced. Note that the gross product or income is 15,000 and the net or capitalist profit is 2000.

Then, Ricardo imagines, suppose that in one year the capitalist reduces his work force producing food and necessities by half, putting the remaining laborers to work constructing a machine for future production of those same food and necessities. That is, out of the 13,000 spent as circulating capital, paying the wages of the work force, half of the total is devoted to wages for those constructing the machine. We might interpret this as follows: in the first half of the year, all of the workers produce the new machinery, while in the second half of the year, all produce corn and necessities with both new and origi-

nal fixed capital.

Thus the new 15,000 gross output produced (given the 10 percent profit rate on the whole of the 20,000) now results in 7500 of new food and necessities and also 7500 in new machinery. While the total capital remains the same at 20,000, its proportion has been changed. The capitalist now possesses 5500 in food and necessities as circulating capital, after his 2000 is subtracted as profit from the 7500. He also possesses the new machinery worth 7500, in addition to his original tools, etc. of 7000. That is, circulating capital is 5500 and fixed capital is 14,500, while formerly there was 13,000 in circulating capital and a fixed capital of 7000.

Since Ricardo assumes that the labor hired by the 5500 of circulating capital in the future can operate the whole of the machinery embodied in the 14,500 in fixed capital, the shrinkage in circulating capital from 13,000 to 5500 means that labor employed by the 7500 difference has become redundant to production. The fewer employed laborers, with the larger quantity of fixed capital or machinery now produce 7500 in food and necessities, in order to achieve the 10 percent profit rate for the capitalist of 2000 on the 20,000 total capital advanced. Thus net income or product remains the same⁶¹ and gross income or product is diminished by 7500 (or 15,000 in the previous

year minus 7500 after the introduction of the new machinery). As the power of supporting a population and employing labor depends on the gross produce of a society, and not on its net produce, there will necessarily be a diminution in the demand for labor, population will become redundant, and the situation of the laboring classes will be that of distress and poverty. Fixed capital, in other words, is accumulated at the expense of circulating capital, those displaced do not find new employment elsewhere, and a new type of unemployment is created, namely, technological unemployment.

In the balance of the first part of the chapter, Ricardo qualifies these conclusions with an argument concerning the increased savings that result from the introduction of the new machinery. He thus asserts that capitalists in general will now be able to save more than before. Assuming that the goods they themselves consume are now produced with more machinery, their prices will fall and allow the same material consumption at a lesser expenditure. The saved revenue can then be accumulated as capital, enabling capitalists to extend production on the new basis. Ricardo characterizes the capitalist's position:

... it could not fail to follow from the reduction in the price of commodities consequent on the introduction of machinery, that with the same wants he would have increased means of savings, - increased facility of transferring

revenue into capital. But with every increase of capital he would employ more labourers; and, therefore, a portion of the people thrown out of work in the first instance, would be subsequently employed62

Indeed, Ricardo's argument can be generalized. Though he himself does not suggest it, lower prices for wage goods produced with more machinery will permit savings on circulating capital as well. In this instance also, more labor can subsequently be re-employed.

Thus, Ricardo adds, it is conceivable that all those rendered redundant with the original introduction of machinery might at some point be returned to employment on the new basis on which production is extended. The passage above continues,

... and if the increased production, in consequence of the employment of the machine, was so great as to afford, in the shape of net produce, as great a quantity of food and necessaries as existed before in the form of gross produce, there would be the same ability to employ the whole population, and, therefore, there would not necessarily be any redundancy of people.

Yet, it would be mistaken to place much emphasis on this possibility, since then there would have little need to introduce the new thirty-first chapter and its retractions in the first place. Ricardo had recognized the existence of temporary unemployment of labor prior to his concern with increases in fixed capital at the expense of circulating, and indeed refers to it implicitly at the beginning of the chapter when noting the "inconvenience" attending "the re-

moval of capital and labor from one employment to another." The new chapter of the third edition explains something beyond this sort of standard, 'frictional' unemployment, and accordingly this argument concerning savings and re-employment of those displaced should be seen in this context.

Thus, in the second of four conclusions to the first part of the chapter, Ricardo asserts straightforwardly that "an increase of the net income of a country is compatible with a diminution of the gross produce" He then adds as his third conclusion that

the opinion entertained by the labouring class, that the employment of machinery is frequently detrimental to their interests, is not founded on prejudice and error, but is conformable to the correct principles of political economy.⁶³

Given these two basic conclusions regarding the impact of machinery introduction, Ricardo proceeds to consider what might occur should price reductions "increase the net produce of a country in a degree so great as not to diminish the gross produce," meaning by the latter the actual quantity of commodities available for labor's means of subsistence. There are three ways in which "the situation of the labouring classes will also be considerably improved," along with that of capitalists and landlords.

1st, from the increased demand for menial servants; 2dly, from the stimulus to savings from revenue, which such an abundant net produce will afford; and 3dly, from the low prices of all articles of consumption on which their wages will be expended.⁶⁴

The second case, saving from revenue to add to capital for the extension of production, has already been encountered. Ricardo was aware of the third case in the prior two editions of the Principles. The second case, however, represents a new alternative. Since it is in good part the subject of the second half of the chapter, let us consider that discussion.

This discussion, it might be emphasized, can be pursued on two levels. In the first place, as will be seen, Ricardo investigates alternative ways in which landlords or capitalists might expend that portion of net revenue devoted to their own consumption needs. According to how this occurs, different, new re-employment possibilities emerge for labor. In the second place, however, should those finding themselves with increased net incomes be reluctant to direct savings to the formation of new capital (perhaps because import duties or other trade restrictions have depressed opportunities for profit), then the re-employment Ricardo contemplated in the first half of his chapter in this connection might well be replaced with the sort involved in a changed consumption expenditure of those receiving net income. This possibility magnifies the significance of the chapter's latter half discussion. It also attracts attention to important indeterminacies in the new machinery introduction framework. Indeed, at

the outset of this discussion, Ricardo notes that "the labouring class have no small interest in the manner in which the net income of the country is expended."⁶⁵

First, then, Ricardo states that if the landlord or capitalist

expends his revenue in the manner of an ancient baron, in the support of a great number of retainers, or menial servants, he will give employment to much more labour, than if he expended it on fine clothes, or costly furniture; on carriages, on horses, or in the purchase of any other luxuries.⁶⁶

In this case, though the net and gross revenues of the country would be the same, net revenue "would be realised in different commodities." Accordingly,

If ... I realised my revenue in the first set of commodities, no more labor would be consequently employed: - I should enjoy my furniture and my clothes, and there would be an end of them; but if I realised my revenue in food and clothing, and my desire was to employ menial servants, all of whom I could so employ with my revenue ..., or with the food and clothing which it would purchase, would be to be added to the former demand for labourers, and this addition would take place only because I chose this mode of expending my revenue.⁶⁷

The argument is, that though the production of either set of commodities to be purchased requires the same amount of labor on the part of those currently producing them, in the former case, these luxury commodities are consumed by the capitalist alone, while in the latter case he trades his commodities for the services of unemployed laborers, thus providing employment in addition to that involved in

their production proper. Thus, Ricardo anticipates the possibility of a significant gain in private service employment on account of the projected increases in consumption out of net revenue resulting from falling prices or values.

Secondly, Ricardo suggests that war may provide an opportunity for remedying the redundancy of labor since

a country engaged in war, and which is under the necessity of maintaining large fleets and armies, employs a great many more men than will be employed when the war terminates⁶⁸

At the same time, a war is also to be financed out of consumption of net revenue via taxes, and thus creates a form of service employment, though in this case as a public service to the landlords and capitalists contributing taxes for military wages. The result, as with increases in private service, is the re-employment of some portion of those technologically displaced from production itself. Ricardo accordingly repeats his previous argument in this new context:

If I were not called upon for a tax ... during the war, and which is expended on men in the situations of soldiers and sailors, I might probably expend that portion of my revenue on furniture, clothes, books, &c. &c. and whether it was expended in the one way in the other, there would be the same quantity of labour employed in production; for the food and clothing of the soldier and sailor would require the same amount of industry to produce as the more luxurious commodities; but in the case of war, there would be the additional demand for men

as soldiers and sailors; and consequently, a war which is supported out of the revenue, and not from the capital of a country, is favourable to the increase of population.⁶⁹

Conversely, while "a war ... is favourable to the increase of population," Ricardo admits that with the termination of a war the population again becomes redundant. Unless, then, some sort of enduring need for armies and fleets can be established, this means of re-employment appears impermanent.

The balance of the second half of the chapter is subsidiary to the analysis of the chapter as a whole. Ricardo warns that the substitution of the labor of horses for that of human beings bears the same consequences as machinery introduction in rendering population redundant. He qualifies the importance of his numerical example by asserting that machinery introduction proceeds more gradually in actuality than the example suggests.

To elucidate the principle, I have been supposing, that improved machinery is suddenly discovered, and extensively used; but the truth is, that these discoveries are gradual, and rather operate in determining the employment of the capital which is saved and accumulated, than in diverting capital from its actual employment.⁷⁰

That is, the numerical example concerned a change in the proportions of fixed and circulating capital for an existing capital, while, in Ricardo's view, the change in these proportions more often tends to occur with respect to the increment to capital from savings. Accordingly, capital

as a whole grows at a greater rate than does circulating capital, upon which the demand for labor depends.

The demand for labour will continue to increase with an increase of capital, but not in proportion to its increase; the ratio will necessarily be a diminishing ratio.⁷¹

In this connection Ricardo footnotes approvingly Barton's analysis of this same phenomenon. Yet it should be emphasized, that though Ricardo expects the replacement of circulating capital to occur generally in the framework of the formation of new capital from savings, in fact there is nothing in his analysis which truly supports this expectation. Indeed the very turnover of capital on a regular basis enables capitalists to proceed more rapidly in this conversion, or as it is described in the numerical example of the first half of the chapter.

Finally, Ricardo concludes the chapter with a warning against the State discouraging machinery introduction. If this were to occur capital would move abroad, and England would lose the opportunity for reduced values of commodities in trade with those countries allowing machinery introduction. Let us now turn to an evaluation of the impact of this discussion on the original conception of distribution in the Principles of the first two editions, in order to determine the compatibility or incompatibility of Ricardo's new views with his previous ones.

The Impact of the Analysis

It was suggested above that an adequate evaluation of the effect on the Principles of the added machinery chapter depended in good part on some acquaintance with Ricardo's philosophical and methodological presuppositions. At the same time it was suggested that Ricardo's own limited comprehension of the effect of this addition resulted significantly from his own limited awareness of these presuppositions. It was then argued that Ricardo was fundamentally a philosophical naturalist, particularly as revealed by his preoccupation with the Malthusian biological law of population, the physico-chemical law of the diminishing fertility of the soil, the notion of value as depending on difficulty of production, and finally the conception of society's natural condition as implicitly harmonious. How well, then, do these principles stand up in the third edition added chapter?

It is appropriate to first consider the status of the Malthusian population law, since the subject of investigation in the added chapter, technological unemployment, is immediately relevant to an explanation of the supply of labor. The Malthusian population law, thus, explains the growth in the laboring population in terms of the growth of the means of subsistence. By defining the "natural

price of labour" as that "which is necessary to enable the labourers ... to subsist and to perpetuate their race, without either increase or diminution,"⁷² Ricardo accounts for increases in the supply of labor through the growth of population when the market price of labor is above the natural level of wages, and conversely, decreases in labor supply when the market price is lower. That is, when the market price differs from the natural price, the means of subsistence differ from that necessary for a constant growth of population, while in the long run labor receives exactly the means of subsistence necessary to maintain a rate of population growth equivalent to the rate of growth of capital.

The biological character of the law is reflected in the mechanism by which population and labor supply changes in number. When there is a divergence between the market and natural prices of labor, laborers, without choice or decision, reproduce at a different rate. In the first place, nothing in the constitution of the social community exists to modify or reverse the response of population to the state of the means of subsistence. In the second place, nothing in the character of the individual exists to distinguish human life from animal. In essence, there is nothing in this analysis that identifies a characteristically social component to labor supply, that is, nothing

which reflects an historical pattern of social choice that at the least modifies the biological Malthusian mechanism.

The machinery chapter, however, overthrows this simple view with the admission of population redundancy. Ricardo's reversal and retraction introduces a new mechanism to the analysis of labor supply that cannot be reduced to the natural principles of the Malthusian law. Specifically, the population of laborers can increase in a relative sense through technological unemployment, though the market and natural prices of labor coincide. Moreover, as seen above, Ricardo does not imagine that redundant laborers will be reduced in number by being separated from the means of subsistence through lost wages. First, the very point of the added chapter is that an unemployment may occur which is not of the temporary sort. Second, that re-employment which does occur from the extension of production or expansion of service employment adjusts the number of laborers by social intervention, since those capitalists and landlords providing employment must do so in a particular decision about the expenditure of net income - and indeed perhaps on occasion only because exhorted to do so by other members of society. Thus, either redundant laborers continue to exist despite deprivation, or should their number indeed be reduced, it must be on account of specifically social causes. While on the one hand the Malthusian pop-

ulation law simply does not apply, on the other hand its scope is seriously modified by a non-naturalistic principle.

The injection of a new, non-natural principle governing population deserves further comment. The key to the changed situation in the added chapter rests with the essential indeterminacies surrounding the possibilities for re-employment of those displaced. While the expulsion of laborers from production proceeds with the natural inevitability of the entrepreneur's pursuit of self-interest, their re-employment rests upon a variety of trade-offs involved in decisions concerning expenditure of net revenue. Whether, then, re-employment proceeds at a rapid or slow pace depends upon social decisions that balance the advantages and disadvantages of more or less technological unemployment. Yet such decisions cannot be formulated apart from assessment of the desirability of one or another state of affairs, and in this instance the entire range of normative debate is brought to play on how many of those displaced should, or ought, to be re-employed. Whether, thus, re-employment possibilities be judged in terms of the good of those rendered redundant, or whether they be a matter of defusing class conflict, as during the years of the Luddites, non-natural normative principles dictate labor supply in some combination with biological ones.

Yet, while Ricardo's original, naturalistic treatment of population is directly qualified and transformed by his admissions in the added machinery chapter, indirectly, though no less significantly, the physico-chemical law of the diminishing fertility of the soil is also undermined. Specifically, Ricardo now allows that technical progress is successful in counteracting declining productivity in agricultural production, because the introduction of machinery results in a fall in the price or value of the farmer's products due to lower labor time requirements, whereas formerly the continual extension of the margin of production involved always higher prices and a falling labor productivity.

Thus, the exceptional character of agricultural production - rooted in the nature of things for Ricardo - no longer obtains, in that technical improvements in this sector are now sufficient to prevent the formerly inevitable declines in output on lesser lands. While it may still be said that nature has provided land limited in extent, that this land is not limited in quality when there is technical progress makes the nature-given constraint on quantity insignificant. In a more modern formulation, technical progress erases all limitations on the economy that derive from resource endowments. More generally, in agriculture it is no longer the case that nature directs the course of

production, but rather human society does so in virtue of its expenditure of effort and wealth upon knowledge and innovation. Thus, as in the instance of labor supply determination, normative matters immediately intrude upon decisions concerning the pattern of development of the economy. That is, the particular gains in output desired in agriculture can only be determined through consideration of the relative advantages of those gains compared with ones possible in other sectors, which also may be dramatically affected by technical progress.

This change in point of view, it should be emphasized, could not have been fully thought through by Ricardo, since he leaves unchanged other discussions of technical progress in agriculture elsewhere in the Principles, for example, the statement that diminishing returns is at most "checked at repeated intervals by the improvements in machinery"⁷³ from the first edition. Perhaps the preoccupation of the added chapter with re-employment possibilities obscured for Ricardo the broader context of technical progress and diminishing returns. In any event, the argument of the original Principles must now be evaluated in light of the implicit claim of the new chapter that diminishing returns are reversible.⁷⁴

We may do this by focusing on the consequences of replacement of circulating by fixed capital and of labor by

machinery. Since in the discussion of the added chapter there is no real characterization of the ease or difficulty of this substitution (except in the remark that it is impossible that all labor be so replaced⁷⁵), we may suppose that essentially laborers in significant number can always be replaced by machinery in a reasonably brief period of time. This implies that, should wages paid by capitalists rise by but a fraction, then capitalists will seek machinery that can replace laborers, in order to preserve their existing levels of cost and profits. In the distributional argument of the Principles, however, wages rise in money terms because of the rising price and cost of subsistence for laborers. Accordingly, should wages begin to rise with the accumulation of capital and the extension of cultivation, machinery will increasingly be used and labor expelled from production.

Technical progress and technological unemployment, that is, represent two sides of a process that circumvents the diminishing fertility of the lesser lands taken into production for growing corn. Either innovation occurs in agriculture itself, and thus withdraws the margin together with the additional employment lesser lands required, or innovation proceeds in other sectors, expelling laborers from production there, making the extension of the margin unnecessary. Ricardo argues that these two cases have an

identical impact in his comparison of the clothier and the farmer.⁷⁶ The difference between them rests upon whether the cost of producing corn is held constant or whether the level of money wages is held constant.

At the same time, technical progress is the means by which the share of rents in the social product are either held constant or reduced. The rising rent share in the original argument of the Principles depended upon the continual extension of the margin of cultivation. Now that no longer occurs, rents cease to rise. Therefore, should profits continue to increase with accumulation, it is well possible that rents come to represent a smaller part of the social product. In absolute terms, in contrast, rents may remain at roughly at the same level, so that landlords' standard of living does not decline in a significant manner. Technical progress, that is, halts the declining productivity in agriculture, but does not necessarily result in sufficiently large gains in productivity that further withdraw the margin and actually reduce rents. More generally, Ricardo's argument relates to the possibility of rising wage costs and the protection of existing profits, and does not suggest that capitalist competition will also be directed towards reducing these costs for increased profits.

In the latter half of the machinery chapter, Ricardo

perceives some of these potential developments. He reminds the reader of that situation in which import duties prevail:

With every increase of capital and population, food will generally rise, on account of its being more difficult to produce.

He then adds, in contrast to his earlier projection:

The consequence of a rise of food will be a rise of wages, and every rise of wages will have a tendency to determine the saved capital in a greater proportion than before to the employment of machinery. Machinery and labor are in constant competition, and the former can frequently not be employed until labor rises.⁷⁷

In this argument about the "saved capital," the "rise of wages" no longer implies a fall of profits, as had been the case in the original analysis, but rather "a tendency to determine the saved capital in a greater proportion than before to the employment of machinery." In other words, the incentive to direct savings toward investment in fixed capital as accumulation proceeds, or indeed to increasingly shift from circulating to fixed capital in the normal turnover of existing capital, increases as wages increase relative to profits. Ricardo now accordingly asserts that machinery and labor are in "constant competition," whereas formerly he had emphasized the opposition of rents and profits. Thus, since it is capitalists who replace labor with machinery, the class antagonism implied by the machinery chapter is between labor and capital, no

longer between landlords and capitalists.

We can further investigate this implicit transformation of the distributional argument of the Principles by examining the effect of Ricardo's new conclusions about technological unemployment on the policy prescription most often associated with the Principles, namely, the cancellation of import duties on corn. Free international trade in corn was of course in the interest of capitalists and contrary to the interest of the landlords according to Ricardo. It can also be said that free trade in corn was in the laborers' interest, since the attendant promotion of capital accumulation and associated reduction in the prices of commodities would permit a greater consumption for a given wage. Yet in the context of machinery introduction, capitalists become relatively indifferent to the cost of food production, since labor can generally be replaced by machinery whose own production is basically unaffected by the state of agricultural cultivation. Similarly, landlords no longer retain the same interest in maintaining the Corn Laws, since their rents cease to rise with increasing machinery introduction.

In contrast, laborers continue to have an interest in the abandonment of import duties, since a lower cost of providing the means of subsistence makes for a lower cost of circulating capital, and should circulating capital be

relatively cheaper than fixed, production on the whole will require more labor. Ricardo notes this in his comparison of the economies of America and England.

In America and many other countries, where the food of man is easily provided, there is not nearly such great temptation to employ machinery as in England, where food is high and costs much labour for its production. The same cause that raises labour, does not raise the value of machines⁷⁸

Thus, since labor and machinery are in "constant competition," any measure which reduces the cost of labor's subsistence, whether it be free trade and greater competition internationally, or even the acquisition of colonies producing these means with abundant fertile land, increases the employment of labor.⁷⁹

At this point, it is appropriate to turn to the question of social harmony under these changed circumstances. Recall that class antagonism in the argument of the original Principles is a matter of a rising rent share brought about by trade restrictions on food imports. Neither the dread stationary state nor social conflict, however, need come about when free trade is the rule. That is, a society in which capital is freely accumulated makes all individuals continually better off, irrespective of their occupational or class position, since all benefit from falling prices and increased consumption that results from improved labor productivity with technical progress. However, with the

added analysis of the machinery chapter, this view ceases to operate, since technical progress is detrimental to the interest of the laboring class, whose displacement from employment counteracts the advantage of cheaper commodities. Capital accumulation with free trade, therefore, generates social conflict and undermines social harmony, and leaves the purportedly natural world as a place of strife and conflict.

This, it must be emphasized, renders the philosophical basis for Ricardo's traditional policy perspective confused. Laissez faire, that is, requires that the owners of capital be free of social intervention in their decisions regarding allocation of stock. Yet this policy depends on the view that a naturally harmonious condition of society is thereby established. More fully, free trade in the pursuit of self-interest is required, because this is the conduit for nature's harmonious regulation of society. Social activities that moderate or manage the capitalist's discretion over expenditure or allocation, it is inferred, can never produce a social world as harmonious as the one received from nature. Thus, if laissez faire itself produces social conflict, the natural condition of society is not harmonious - it is a Hobbesian universe in which self-interest is antagonistic - and social activity becomes justifiably the means of achieving the harmonious social ex-

istence. In short, laissez faire is thrown into question by Ricardo's admission that

the opinion entertained by the labouring class, that the employment of machinery is frequently detrimental to their interests, is not founded on prejudice and error, but is conformable to the correct principles of political economy.⁸⁰

What shape, then, does economic policy assume in this new state of affairs?

In the latter half of the machinery chapter, Ricardo's implicit rejection of laissez faire takes particular form. In contrast to his consistent non-interventionist approach of the balance of the Principles, in this chapter he argues for policies quite the opposite in character. Specifically, it is now claimed that those receiving net income should expend it in such a way as to increase the amount of re-employment of displaced laborers. In effect, it is undesirable from the point of view of both those receiving net income and the laboring class that luxuries be purchased by the former at their discretion. That is, capitalists and landlords now possess some social responsibility to at least consider the social consequences of their patterns of expenditure. How serious a constraint this amounts to can be ascertained through further consideration of the social effects of the accumulation process.

Thus, if the rate at which labor is expelled from production is moderate, due to a comparatively gradual

conversion of circulating capital into fixed, then it may well be the case, as Ricardo suggests, that most of those displaced will be re-employed. On the other hand, if the conversion process proceeds at a more rapid rate, and if there is little emigration voluntarily initiated by members of the laboring class, then clearly unemployment may become a serious social problem. Indeed, social distress on the part of those living from wages was manifest in England during the early years of the nineteenth century, noticeably in the Luddite struggles of 1811 to 1813 and in the Peterloo Massacre of 1819. Increased unemployment could either have directly created these conflicts, as in the former case, or rather have but contributed to their severity, as in the latter case. Thus, should increased re-employment through the proposals Ricardo makes be said to in fact lessen such conflicts, then at times a somewhat strong or heavy-handed interventionist policy prescription would have appeared appropriate. This could be achieved through the passage of laws which limited capitalists' and landlords' discretion over their expenditures, say, through taxes on luxuries or for greater military budgets.

In contrast, in times of relative social harmony, a more casual, seemingly laissez faire public policy could be adopted. However, this latter tone should not be confused with the actual policy of free trade and non-intervention.

The principle of non-interference in this case is no longer justified by a naturalistic philosophical conviction that the social world is inherently harmonious when left to operate on naturalistically-defined principles, but rather by the recognition that a relatively free use of one's property, whether it be stock or land, depends upon ensuring the basic discretion over the use of that property on the part of its owner. That is, if any conditions are to be placed upon landlords' and capitalists' use of their property, those conditions must be conceptualized around the preservation of their right, however justified, to employ an essentially private property. To formulate an interventionist principle that goes beyond this, namely in permitting those not owning stock or land some discretion over their use, is to give the goal of social harmony a pre-eminence that robs the tone and practice of a measured non-intervention of any plausibility whatsoever.

Ricardo was not unaware of the underlying logic surrounding the conceptual compromise he imposed on the policy of laissez faire. At the outset of the second half of the machinery chapter, when the proposals for labor's re-employment are examined, he reminds the reader that while "the labouring class have no small interest in the manner in which the net income of the country is expended," at the same time, he insists, "it should, in all cases, be

expended for the gratification and employments of those who are fairly entitled to it,"⁸¹ that is, the owners of land and stock. Presumably, the not "small interest" of "the labouring class" is to be satisfied within the constraints of an interventionist policy stance that does not infringe upon the right to private property.

Thus, Ricardo leaves the Principles with a duality that might be judged an unbalanced one. While social harmony is implicitly desired, it is no longer nature-given. At the same time, though the self-interested use of private property is deemed fundamentally justified, that is, natural, this use is often productive of social conflict. What balance there is possible in this can only come about through a limited practice of intervention in the uses of land and stock that both preserves property rights in essence and mitigates social conflict. However, in the end, the laws of political economy cease to be natural ones. They are now socially constituted around the necessity of actively maintaining the balance in question. Political economy, therefore, becomes an inescapably social and historical discipline. Its so-called laws are social constructions that reflect the course of historical events. Ricardo, of course, did not draw these conclusions.

FOOTNOTES

1. Works, Vol. I, p. 1.
2. Ibid., pp. lii, liii.
3. Ibid., Vol. VIII, p. 229.
4. Note Sraffa's evaluation: "Although no essential change was made in successive editions about the rule which determines value, two considerable alterations were made in connection with the choice of an invariable measure of value." Ibid., Vol. I, p. xl.
5. Ibid., Vol. VIII, pp. 333, 373.
6. Ibid., Vol. I, p. 81n.
7. Ibid., p. 388.
8. Ibid., p. 386.
9. Ibid., p. 388. Sraffa terms the addition of the chapter the "most revolutionary change in edition 3." Ibid., p. lvii.
10. See Sraffa's comments on the organization of the Principles, Ibid., pp. xxiii-xxiv.
11. Robert Torrens, An Essay on the Production of Wealth, (New York: Augustus M. Kelley, 1965), p. xi.
12. Works, Vol. VIII, p. 384. For a discussion of the correspondence between Ricardo and McCulloch, see Samuel Hollander, The Economics of David Ricardo, (Toronto: University of Toronto Press, 1979), pp. 357-9, 369-72.
13. John R. McCulloch, The Principles of Political Economy, Fifth Edition, (New York: Augustus M. Kelley, 1965), Part I, Chapter VII.
14. Political Economy Club, Centenary Volume, Vol. VI, (London, 1921), p. 223. Ricardo's analysis of money and international trade were alone largely unaffected.
15. Ronald Meek, Economics and Ideology and Other Essays, (London: Chapman and Hall, 1967), p. 70.

16. John Stuart Mill, Principles of Political Economy, edited by W. J. Ashley, (New York: Augustus M. Kelley, 1965), p. 96. In the passage cited, Mill is correcting McCulloch's cruder compensation via his own principle, "Demand for commodities is not demand for labor."
17. Ibid., p. 97.
18. Karl Marx, Theories of Surplus Value, Part II, (Moscow: Progress Publishers, 1968), p. 558.
19. Joseph A. Schumpeter, History of Economic Analysis, (New York: Oxford University Press, 1954), p. 628n.
20. Alfred Marshall, Principles of Economics, 8th Edition, (London: Macmillan, 1920), Appendix I.
21. Ibid., Appendix I.
22. Knut Wicksell, Lectures on Political Economy, 2 Volumes, (New York: Macmillan, 1934), Vol. 1, pp. 137ff.
23. Friedrich von Hayek, Profits, Interest, and Investment, (London, 1939), p. 8.
24. John Hicks, A Theory of Economic History, (Oxford: Oxford University Press, 1967), pp. 151-4, 168-71.
25. Luigi Pasinetti, Growth and Income Distribution, (Cambridge: Cambridge University Press, 1974), pp. 20-1.
26. Works, Vol. I, pp. lvii, lvi.
27. Schumpeter, op. cit., p. 683.
28. Ibid., p. 684.
29. Hans Neisser, "'Permanent' Technological Unemployment," American Economic Review, Vol. 32 (March 1942), p. 61.
30. Mark Blaug, Ricardian Economics, A Historical Study, (New Haven: Yale University Press, 1958), p. 70.
31. Ibid., p. 71.
32. Hollander, op. cit., pp. 351-7 on Barton, 370-3. For Sraffa's view, Works, Vol. I, pp. liii-iv.
33. Hollander, op. cit., p. 372.

- 34. Ibid., p. 10.
- 35. Ibid., p. 13.
- 36. Ibid., p. 535.
- 37. Works, Vol. V, p. 296.
- 38. Ibid., Vol. I, p. 5.

39. Ibid., pp. 91-2. It is not necessary to pursue the difficulties imposed on Ricardo's value analysis, by "particular employments of capital," though the preoccupation with this problem reflects Ricardo's conviction that "the employments of capital" could not disturb the "laws" at issue.

40. For a discussion of Ricardo's use of abstract law, see Mark Blaug, "The Empirical Content of Ricardian Economics," Journal of Political Economy, Vol. LXIV (1956), pp. 41-55, and Blaug, op. cit., pp. 181-8; also Neil DeMarchi, "The Empirical Content and Longevity of Ricardian Economics," Economica, Vol. XXXVII (August 1970), pp. 257-276. Ricardo was ambiguous about the epistemological status of abstract laws.

- 41. Works, Vol. VI, p. xxviii.

42. Quoted from the High Price of Bullion (1810), Works, Vol. III, p. 56. The "naturalism" in early utilitarianism derives from the effort to reduce moral value, a non-natural quality, to the natural qualities of the individual's psychology and physiology. The questionable premise of the argument, apart from the clearly untenable reductionism, relates to the individuation of the agent as the biological individual. Also note Ricardo's critical appraisal of Robert Owen in a letter to Trower: "Can any reasonable person believe, with Owen, that a society, such as he projects, will flourish and produce more than has ever yet been produced by an equal number of men, if they are to be stimulated to exertion by a regard to community, instead of by a regard to their private interest? Is not the experience of the ages against him?" Works, Vol. VIII, p. 46.

- 43. Maurice Dobb, Theories of Value and Distribution Since Adam Smith, (Cambridge: Cambridge University Press, 1974).

- 44. Works, Vol. VI, p. 348.
- 45. Ibid., Vol. I, p. xlviii.

46. Piero Sraffa, Production of Commodities by Means of Commodities, (Cambridge University Press, 1960).

47. The remaining area of dispute between Malthus and Ricardo, the issue of gluts, while not assuming any particularly naturalistic connotations, nonetheless only turned on formal consistency, with Ricardo treating Say's Law of Markets via James Mill's monetary economy formulation more or less as an identity.

48. Works, Vol. I, p. 36.

49. For Ricardo's discussion of such "improvements" in agriculture, see Ibid., pp. 80-2.

50. Ibid., p. 120.

51. Ibid., pp. 392-5, 395-6, 396-7.

52. Ibid., pp. 386-8, 388-90, 390-2.

53. Ibid., p. 386.

54. Ibid., p. lviii; also see Vol. V, p. 30.

55. Ibid., Vol. I, p. 386.

56. Ibid., p. 387. Marx argued that Ricardo, even in his original analysis, overestimated the amount of capital that was "still in being" for the re-employment of labor elsewhere, because of the changed requirements for raw materials, and added machinery. See Marx, Theories, op. cit., Part II, p. 557.

57. Works, Vol. I, p. 386. For discussion of the labor value mechanism, see pp. 40-2.

58. Ibid., p. 388.

59. Ibid.

60. Ibid., p. 390. Marx believed that the agricultural case was unrepresentative, and argued that Ricardo's view of technological unemployment might well result without any reduction in gross income whatsoever. Marx, Theories, op. cit., Part II, pp. 560-1.

61. Ricardo originally claimed that the net income might be increased, while gross income decreased. If the farmer introducing the new machine initially enjoys lower costs than other farmers, who have yet to follow suit, then the net income of the leading farmer has indeed increased, even though gross income has fallen.

62. Works, Vol. I, p. 390.

63. Ibid., p. 392. The first conclusion concerns changes in the value and quantity of net produce.

64. Ibid.

65. Ibid.

66. Ibid., p. 393.

67. Ibid.

68. Ibid.

69. Ibid., pp. 393-4.

70. Ibid., p. 395. Note that this is not a question of savings from revenue; compare, "the increase of net incomes, estimated in commodities, which is always the consequence of improved machinery, will lead to new savings and accumulation." Ibid., p. 396.

71. Ibid., p. 395.

72. Ibid., p. 93.

73. Ibid., p. 120.

74. There is nothing in Ricardo's Chapter XXXI to indicate that he abandons his formulation of value, in terms of the difficulty of production, or his notion that pursuit of individual self-interest is natural.

75. Ibid., p. 396n.

76. Ibid., pp. 390-1.

77. Ibid., p. 395.

78. Ibid.

79. The historian, E. P. Thompson, argues that the laboring classes supported the repeal of the Corn Laws. The Making of the English Working Class, (New York: Vintage, 1966), Chapter VII.

80. Works, Vol. I, p. 392.

81. Ibid.

CHAPTER II

RICARDO'S THEORY OF PROFIT

In order to understand Ricardo's theory of profit, it is necessary to understand his analysis of the different kinds of price, those of distribution and of commodities. In what follows, we will briefly consider this analysis as it develops out of the transition from the Essay on Profits to the Principles, and then turn at length to the two, distinct distributional accounts of the Principles that are made possible by Ricardo's particular treatment of prices. In both of these accounts, first, that appropriate to the first two editions, and second, that appropriate to the third edition, it is Ricardo's explanation of the determination of profit that is central. Moreover, although there are two distinct accounts of distribution in the Principles, the explanation of the determination of profit is formally the same in both instances.

In an economy dominated by commodity exchange, two different kinds of price need to be distinguished in Ricardo's view. On the one hand, produced commodities

are exchanged for one another via money on the basis of their relative prices. On the other hand, the three social classes identified in the Principles - landlords, capitalists, and laborers - each receive a return or payment for their respective contributions to production, namely, rent, profit, and wages, which represent the prices of their contributions, or simply distributional prices. Thus, central to Ricardo's analysis of a commodity-producing exchange economy is the differential explanation of these two kinds of prices. Indeed for him, it is the interaction of these two, distinct logics of price determination that captures the essence of such an economy. Accordingly, let us first consider the means by which these two logics of determination are isolated from one another, then secondly, the specific principles operative in each case.

Following the neo-Ricardian program of rehabilitating a characteristically classical conception of the economy,¹ as initiated by Sraffa's publication of the complete works of Ricardo (together with the issue of his own Production of Commodities by Commodities),² we may begin by focussing attention of the notion of an invariable measure of value. Ricardo turned to the investigation of such a measure in the Principles, in order to determine the absolute values of commodities, that is,

their values in terms of their conditions of production alone. Thus he comments in a draft of his unpublished, final paper on "Absolute Value and Exchangeable Value" on what he means by what he variously termed absolute value, value, real value, or natural value:

I may be asked what I mean by the word value, and by what criterion I would judge whether a commodity had or had not changed its value. I answer, I know no other criterion of a thing being dear or cheap but by the sacrifices of labour made to obtain it.³

Absolute value, then, is the criterion for establishing in which of two commodities changed in relative value the real change has occurred. That is, were one able to compare two such commodities to an unchanging measure of value, it should be possible to say whether one or both had changed in their circumstances of production in terms of that standard.

At the same time, were two commodities to remain unchanged in absolute value, or in terms of their conditions of production, any change in their relative values that might result from a change in the division between wages and profits should in principle be distinguishable as such, if the invariable standard is itself not affected by that redivision. Thus Ricardo asserts with reference to a commodity which changes in relative value following a change in wages: "If the measure was perfect it ought

not to vary at all."⁴ That is, the commodity ought not to change in absolute value were the measure itself unaffected. More generally, a measure of absolute value was for Ricardo a means of determining the relative or exchangeable values of commodities independently of any changes in distributional prices. Relative and distributional prices, therefore, each possessed their own respective logics of determination which first had to be explained separately from one another before being considered in conjunction with one another. Accordingly, the Principles begins with an account of value in its initial chapter, and then proceeds - given the conclusions achieved there - to the analysis of rents, wages, and profits.

The function of the invariable measure of value in the Principles becomes clearer when it is recognized that Ricardo turned to the analysis of commodities' exchangeable values only after having reached specific conclusions concerning the determination of distributional prices in the Essay on Profits.⁵ As Sraffa has argued in his "Introduction" to the Principles,⁶ Ricardo only became aware of the need for a complete analysis of commodities' values when Malthus criticized the "material rate" account of profits in the Essay. Specifically, since Ricardo had determined the profit rate in an econ-

omy in which capital only consisted of corn consumed by labor, in the process abstracting from all possible relative price movements that might be involved in labor's consumption of a collection of different commodities, it was open to Malthus to object that such relative price movements, attendant upon possible variations in distribution, might well undermine the Essay conclusions regarding the determination of profits. That is, unless the values of commodities could be explained independently of changes in distribution, Ricardo's conclusions about distribution might require modification or even abandonment. Accordingly, in the Principles he set out to explain the values of commodities in terms of their conditions of production alone, thereby requiring an analysis of an invariable measure of value. Indeed, as he later wrote to McCulloch, an explanation of the values of commodities was at the same time an analysis of an invariable measure of value.

Is it not clear that as soon as we are in possession of the knowledge of the circumstances which determine the value of commodities, we are enabled to say what is necessary to give us an invariable measure of value?⁷

However, when Ricardo set out to explain the values of commodities, he encountered substantial problems.

In particular, it was soon discovered that since different commodities were produced with different com-

positions of capital (different proportions of fixed and circulating capital, different durabilities of fixed capital, and different turnover times of circulating capital), changes in the division of the national product between classes could alter the magnitude of this product in value terms, though nothing might be changed in the number of commodities produced, their quantities, or in their conditions of production. Since in the Essay it had been concluded that wages and profits, as shares of the national product, were inversely proportional to one another, that the national product could change with distributional changes meant that a given change in wages no longer led to an unambiguous change in profits. That is, changes in distribution affected the exchangeable values of commodities when they were not produced with identical compositions of capital, so that the total of all commodities evaluated at their values fluctuated, leaving the relation between income shares indeterminate.

Ricardo reasoned that this alteration in the value magnitude of national product might be explained as a change in measurement of the relative values of commodities, if an adequate measure of value could be identified. With such an invariable measure, the magnitude of national product would not fluctuate with distributional changes, and the results of the Essay could then be main-

tained. However, since an invariable measure itself would involve particular conditions of production, its capital composition would need to somehow be neutral with respect the capital compositions of commodities evaluated by it were it to accurately measure the absolute value of those commodities. As Sraffa has demonstrated,⁸ much of the re-formulation of the Principles can be understood in terms of Ricardo's efforts to adequately identify the conditions such a measure of value would need to fulfill.

More generally, Ricardo's preoccupation with the notion of an invariable measure of value is evidence that he believed there were two categories of price determination, each possessing an independent basis that required distinct analysis. Not only then was it the interaction of these two that would explain the commodity exchange economy, but, more importantly from his point of view, this approach would allow the crucial questions surrounding distribution to stand forth in a manner that none could ignore. Ricardo emphasized this in a letter to McCulloch:

After all, the great questions of Rent, Wages, and Profits must be explained by the proportions in which the whole produce is divided between landlords, capitalists, and labourers, and which are not essentially connected with the doctrine of value.⁹

Quite simply, therefore, the invariable measure of value

was Ricardo's means of radically dichotomizing the two realms of price determination.

The first two editions of the Principles, then, present a labor theory of value of the exchangeable values or relative prices of commodities, arguing "that it is the comparative quantity of commodities which labor will produce, that determines their present or past relative prices."¹⁰ At the same time, in this conclusion to the original first section of the first chapter of the Principles of editions one and two, Ricardo adds:

If any one commodity could be found, which now and at all times required precisely the same quantity of labor to produce it, that commodity would be of an unvarying value, and would be eminently useful as a standard by which the variations of other things might be measured. Of such a commodity we have no knowledge, and consequently are unable to fix on any standard of value. It is, however, of considerable use towards attaining a correct theory, to ascertain what the essential qualities of a standard are, that we may know the causes of the variation in the relative value of the commodities, and that we may be enabled to calculate the degree in which they are likely to operate.¹¹

While this passage disappears from the last edition of the Principles, Ricardo adds a new section to the chapter on value entitled, "On an invariable measure of value," which opens with a passage very similar to this one. In this section, moreover, the difficulties involved in identifying an invariable measure of value are

candidly admitted and linked to differences in capital compositions of any potential measure and all other commodities that might be evaluated by it. Ricardo suggests that gold might approximate a perfect measure of value, and in effect, asks the reader that it be granted an adequate approximation, in order that his investigation may proceed.

To facilitate, then, the object of this enquiry, although I am fully aware that money made of gold is subject to most of the variations of other things, I shall suppose it to be invariable, and therefore all alterations in price to be occasioned by some alteration in the value of the commodity of which I may be speaking.¹²

Therefore, though Ricardo was not entirely satisfied with his final position in the third edition of the Principles, as is further evident from his unpublished, final paper, "Absolute Value and Exchangeable Value," as well as his correspondence in 1823,¹³ and though his analysis of the invariable measure of value is incomplete, nonetheless his intent to use such a measure to maintain the conclusions of the Essay in the multi-commodity framework of the Principles is clear. Accordingly, let us now turn to the particular explanations appropriate to the exchangeable values of commodities and the rewards for contributions to production on the part of landlords, capitalists, and laborers, and establish how Ricardo intended to account for these different prices.

In Ricardo's treatment of the relative prices of commodities we find an analytically clear doctrine that is based on several key propositions. In the first instance, Ricardo adopted a labor theory of value in the Principles, in which, as we have seen, if we abstract from differences in capital compositions of different commodities, the prices of commodities are proportional to their cost of production in terms of the labor time embodied in that production. This view is of course distinct from Smith's labor commanded view of the relative prices of commodities, which Ricardo argues against in his first chapter on value where he distinguishes his own account. Moreover, it is emphasized there that a labor contents cost of production approach applies only to the great number of commodities "as can be increased in quantity by the exertion of human industry," while excluding those comparatively few goods, "the value of which is determined by their scarcity alone," namely, rare pictures, fine wine, etc.¹⁴ Putting these latter cases aside, then, Ricardo asserts that generally,

If the quantity of labor realized in commodities, regulate their exchangeable value, every increase of the quantity of labor must augment the value of that commodity on which it is exercised, as every diminution must lower it.¹⁵

In addition, Ricardo suggests that differences in the quality of labor expended on different commodities can

safely be ignored since the market itself adjusts for such differences, skill and intensity of work vary little over time, and a theory of value only need explain the relative values of commodities.¹⁶

In the second place, Ricardo extends his labor embodied analysis of the value of commodities beyond "that early and rude state of society, which precedes both the accumulation of stock and the appropriation of land," which Smith believed the sole domain of a labor content theory of value, and asserts that

the exchangeable value of the commodities produced would be in proportion to the labor bestowed on their production; not only on their immediate production only, but on all those implements or machines required to give effect to the particular labour to which they were applied.¹⁷

By including both the labor directly and indirectly applied to the production of a commodity to determine its value he consequently is able to predict the direction of price change of those commodities whose conditions of production have changed: if the sum of both direct and indirect labor falls as a result of less direct labor applied to more machines and implements embodying additional indirect labor, then the price of the commodity can be expected to fall; its price rises in the opposite case.

However, this advance beyond Smith's rudimentary

labor content theory raised important difficulties for Ricardo's analysis, in that it became impossible to continue to ignore differences in capital compositions of different commodities, which, it could easily be shown, disrupted the principle that commodities' values were strictly proportional to direct and indirect labor contents. Specifically, were, say, wages to vary in their share of national income, the relative prices of different commodities would also vary on account of the different proportions of fixed and circulating capital in those different commodities, though the labor embodied contents of those commodities remained unchanged. Similarly, when focussing on the labor content of commodities in terms of merely the indirect labor embodied in them, Ricardo discovered that different durabilities of fixed capital in different commodities would also create differences in price were only distribution to change, so that again labor content alone could not be said to strictly determine relative value.¹⁸

Though Ricardo struggled with these problems through successive formulations of his value chapter, significantly, with the publication of the last edition of the Principles he decided that the labor value theory was at most modified by these difficulties. Thus shortly before its issue he wrote to Malthus,

You say that my proposition "that with few exceptions the quantity of labour employed on commodities determines the rate at which they will exchange for each other," is not well founded. I acknowledge that it is not rigidly true, but I say that it is the nearest approximation to truth, as a rule for measuring relative value, of any I have ever heard.¹⁹

That such modifications of Ricardo's labor value proposition did not suggest to him that the proposition be abandoned altogether testifies to his conviction that the exchangeable values of commodities could be explained apart from distributional prices, that is, in terms of their cost of production alone. Put differently, the intent to segregate the two realms of price determination led Ricardo to deny the significance of problems in the determination of commodities' values which he knew he had been unable to resolve. Accordingly, because we are primarily concerned here with how the two distinct logics of price determination produced Ricardo's particular understanding of distribution and the functioning of the economy, we will simply register the fact of incompleteness in the account of commodities' values, and proceed to a more general characterization of the kind of analysis Ricardo hoped to elaborate. Indeed, it is the general character of this view that will figure in our subsequent examination of the interaction of the two realms of price determination.

Thus, since the exchangeable value of a given commodity is basically determined by the amount of labor required for its production, its value can be explained within the framework of cost alone. A commodity's exchangeable value can consequently be characterized as objective in the specific sense that its cost of production is determined in terms of those essentially technical considerations surrounding the conditions of production which Ricardo labels merely as "the difficulty of production."²⁰ A commodity's value, it should be noted, is therefore not affected by the composition of demand, since Ricardo focuses on reproducible goods, as opposed to those goods which are in scarce supply, and which include an additional element determining their value associated with demand.

In more contemporary language, Ricardo's understanding of exchangeable value might be said to derive from an input-output framework. The value of an output commodity is explained by the total value of all input commodities required for its production, so that accurate estimation of a commodity's value depends upon accurate identification of not only every input used in its production, but also the exact amounts of each of those inputs. In this framework, relative prices can be determined for every good if, algebraically speaking, every

good is represented as a linear function of its inputs, and the number of prices to be determined is the same as the number of goods produced. Indeed, Sraffa's own neo-Ricardian models in the Production of Commodities by Commodities take this form.

Finally, this cost of production approach to commodities' values is, as has been suggested, the sort of approach requisite for the presentation of Ricardo's particular treatment of distribution. While we cannot yet say how wages, rents, and profits are actually determined for Ricardo, we can say something about the manner in which their analysis is made possible by Ricardo's understanding of commodities' values. Thus, should in the production of a number of commodities in an economy some or all of a number of these goods exceed what is necessary for the replacement of the inputs used-up in their production (so that the economy produces a surplus), and should the relative values of these commodities be determined entirely independently of distribution in cost of production terms, then we can speak of the total reward received respectively by landlords, capitalists, and laborers as shares in national income. In other words, we can only begin to speak unambiguously of such shares of an economy's surplus if that surplus to be divided is a determinate amount, the value of which is

established objectively in cost of production terms. Were, by contrast, the size of the economy's surplus itself a function of the determination of distribution, then it could not be shown that total wages, total rents, and total profits were simple shares of that surplus, since the surplus would vary were distribution to vary.

The significance of this, we shall see, rests largely with Ricardo's determination of profits. Profits are determined as a residual for Ricardo, meaning that they are what remains after the determination of wages and rents. Thus, were it not possible to establish the size of national product in objective cost of production terms, it would not be possible to explain profits as a residual, since that very determination would influence the size of national product. Put differently, that Ricardo insists on the dichotomous treatment of the prices of exchangeable values of commodities and the prices of distribution implies that he can proceed to treat profits as a residual, when he turns to their analysis. We begin, accordingly, to see the manner in which Ricardo's conception of prices provides specific conclusions about the operation of the economy as a whole. Because commodities are explained in cost of production terms, profits can be explained in a particularly sharp fashion. Let us, then, turn to the particular way in which wages, rents, and profits are ac-

tually determined for Ricardo, in order to see the exact manner in which the two logics of price determination produce Ricardo's conception of the economy.

Here we find Ricardo's argument far less straightforward for a number of reasons. First, as was argued in our previous chapter, Ricardo's account of distribution changes from the first two editions of the Principles to the third. Secondly, as will be seen here, his approach to the different distributional prices is not homogeneous. Thirdly, as will also be seen here, Ricardo's thinking was incomplete in regard to the understanding of distribution in the third edition, so that his arguments are not everywhere consistent on the surface. In what follows we will examine the nature and adequacy of Ricardo's arguments for the different distributional prices, first in the context of the original two editions of the Principles, and then in the context of the last edition.

For the first two editions it is appropriate to begin with the characterization of wages. This is both because of the dramatic changes that are introduced in this understanding of wages in the third edition, and because of the unique treatment wages receive in the early Principles among all of Ricardo's accounts of distributional prices. Accordingly, let us first consider

wages as they are first explained within the framework of the entire distributional analysis of the first two editions, and then turn to the changes in this account which transform the third edition analysis of distribution altogether.

The uniqueness of Ricardo's treatment of wages in the first two editions of the Principles stems from the effort to model their analysis alone on that of relative prices of commodities. That is, wages are determined by the cost of production (or reproduction) of the labor force.

Labour, like all other things which are purchased and sold, and which may be increased or diminished in quantity, has its natural and its market price. The natural price of labour is that price which is necessary to enable the labourers, one with another, to subsist and to perpetuate their race, without either increase or diminution.²¹

Labor is in the first place no different from commodities which are "purchased and sold." Indeed that labor may be "increased or diminished in quantity" recalls Ricardo's fundamental characterization of the mass of commodities "as can be increased in quantity by the exertion of human industry," or "may be multiplied without any assignable limit."²² Secondly, to say that the natural price of labor is that which exactly allows laborers "to subsist and to perpetuate their race, without increase or diminution" is merely to express the cost of production or

input-output conditions essential to the objectivist formation of the exchangeable values of commodities. Thirdly, the assertion in the chapter on value that "the consideration of the comparative skill and intensity of labour ... needs scarcely to be attended to" (when considering the values of commodities in terms of the labor embodied in them) means that scarcity conditions already seen to apply to certain rare goods, and excluding them from general consideration in the Principles, will also be put aside in examining labor, so that "one description of labour at one time is compared with the same description of labour at another."²³ Consequently, labor is simply a commodity, and its price, wages, is determined no differently from the prices of other commodities.

At the same time, there is an additional element in Ricardo's account of wages which raises questions about his commodity cost of production analysis for labor. The natural price of labor, he asserts, depends on "the quantity of food, necessities, and conveniences become essential ... from habit."²⁴ More fully,

It is not to be understood that the natural price of labour, estimated in food and necessities, is absolutely fixed and constant. It varies at different times in the same country, and very materially differs in different countries It essentially depends on the habits and customs of the people.²⁵

Certainly in one respect this remains consistent with the cost of production analysis of the commodity, since inputs to the production of labor ("food and necessities") are still accounted for in terms of their contribution to the cost of production of labor. In another respect, however, an important issue is raised suggesting that labor cannot be adequately understood in the simple cost of production framework. Specifically, that what is estimated to be necessary for the production of labor may vary across time and place suggests that labor's supposed cost of production is not reducible to the strictly objectivist, technical conditions appropriate to the analysis of the cost of production of commodities. That is, it cannot be said that a solely technical - or perhaps naturalistic - set of conditions explains the cost of production of labor, since these conditions themselves are socially determined by "the habits and customs of the people." Accordingly, Ricardo's reference to the "natural price of labour" is misleading, since he uses this expression analogously to the notion of the natural price of a good.

However, this element in the early Principles understanding of the determination of wages does not become significant in the distributional analysis Ricardo elaborates originally, because here wages never vary on account of such forces. Social determination of the

wage, that is, is not at issue in the first two editions, since, as is familiar to most readers, variations in the relative shares of national income, and thus distributional prices, only arises in connection with the contest between capitalists and landlords. For all intents and purposes, then, in the first two editions of the Principles the natural price of labor can be treated in the same manner as the natural price of any given commodity, while further attention to the element of social determination in wages can be postponed until consideration of the third edition, where it becomes crucial.

Let us pass on to the analysis of rent. With rent one encounters a dramatically different sort of treatment than is seen in the cost of production framework. Indeed, in distinguishing his understanding of rent from Smith's cost of production account, Ricardo insists that rent is not a cause of a good's price or exchangeable value, as is the amount of labor required for its production, and thus wages.

If the high price of corn were the effect, and not the cause of rent; price would be proportionately influenced as rents were high or low, and rent would be a component part of price. But that corn which is produced by the greatest quantity of labour is the regulator of the price of corn; and rent does not and cannot enter in the least degree as a component part of its price.²⁶

Rent, then, is an effect of the level of the corn price,

and not a cause of that price. That is, it is price determined rather than price determining. In the second edition of the Principles Ricardo adds a note to this passage emphasizing his departure from Smith as fundamental:

The clearly understanding of this principle is, I am persuaded, of the utmost importance to the science of political economy.²⁷

He then goes on in the text itself to add that this understanding of rent overturns Smith's conclusion that the value of a commodity cannot be determined by the comparative quantity of labor necessary for its production when land has been appropriated, and to thus reject the 'adding-up' approach to the value of a commodity that is employed by Smith, whereby rent, wages, and profits are each a "component part" of the price of a commodity.

Ricardo's cost of production theory of the value of commodities, then, does not proceed via the Smithian 'adding-up' approach, because, in Ricardo's view, there is something importantly different at the very least in the determination of rent from what is involved in the determination of wages. Specifically, whereas in the first two editions of the Principles labor earns a wage proportional to its cost of production or reproduction, land earns a rent according to the level of the price of corn, so that it cannot be said that rent is in any way

tied to the cost of production of land in the production of corn, as wages are tied to the cost of production of "food and necessaries." Similarly, while labor is understood as something that is continuously reproduced, and thus to be rewarded in terms of the inputs necessary to its reproduction, land is not thought to require reproduction, is not seen to result from some combination of inputs, and so cannot enter into the cost of production of corn as an element determining its price. Ricardo in effect insists on this at the very outset of his discussion of rent in the characterization of land.

Rent is that portion of the produce of the earth, which is paid to the landlord for the use of the original and indestructible powers of the soil.²⁸

In the Essay it had been the "original and inherent power of the land."²⁹ In other words, land is unique among the resources for production in that it is "original" or non-produced. Put differently, it is not the sort of resource that "can be increased in quantity by the exertion of human industry," so that its price, rent, must be determined differently than the prices of those goods that can be so produced.

Generally, then, the special character of rent stems from the special character of land. While for Ricardo it might be said that land in the early 1800s resembled

"those commodities, the value of which is determined by their scarcity alone," it was in fact neither truly a commodity, nor did it function as an object of final consumption, as did those goods such as rare coins, etc., whose value could be said to be determined by their scarcity. That it was not entirely a commodity was due to the historical fact that land in the early 1800s was yet largely held by landlords whose title to the land was traditional and inherited. Although land was indeed in the process of becoming a commodity subject to the same conditions of purchase and sale characteristic of other commodities, Ricardo's treatment of farmers as tenants testifies to the fact that land was still infrequently purchased outright when he wrote. Furthermore, as a resource in corn production, land was clearly different from goods such as rare coins, etc., and thus again required special explanation to account for its reward. Conveniently, a distinctive explanation of rent had appeared after Smith in the work of Malthus, West, and Torrens, and this account carried the advantage of denying land to be an element in the cost of production of corn. This was of course the theory which Ricardo also adopted, and which later became known as the theory of Ricardian rent.

The details of this account are well known. With

the growth of population and the accumulation of stock, the margin of corn production is continually extended, so that land of a quality inferior to that already in production is continually brought into use. Given that land is "not unlimited in quantity and uniform in quality,"³⁰ the last land brought into corn production only generates a sufficient return in the value of the corn produced to pay the wages of labor employed upon it plus a return to the capital advanced to pay those wages. This land, then, can earn no rent itself due to its inferior quality, and since the labor required to produce a given quantity of corn upon it exceeds that necessary for the same quantity of corn on land of higher quality, the value of corn being proportional to labor content, the better land sells its corn at a price exceeding its labor content cost of production, so paying a rent. Thus, as Ricardo concludes against Smith, rent is not a cause of price, but rather is an effect of the price of corn.

That this formulation is clearly distinct from the cost of production approach utilized in the case of labor implies that Ricardo's distribution theory as a whole relies on elements of explanation distinct from what is involved in the technical, objectivist cost of production approach. We might denote this additional

element the social dimension in Ricardo's distribution analysis, since the payment to land, rent, is primarily a matter of social institutions, namely, those involved in the early nineteenth century system of land tenure, together with the political arrangements in Parliament and elsewhere that maintained this form of reward for landlords' contribution to production. This emphasis, it should be noted, is hardly foreign to the overall perspective of the Principles. First, the work begins with a characterization of classes, differentiating capitalists from landlords implicitly by their respective forms of property. The latter hold their property by birth-right, and the former hold theirs by contract. Since rent and profit depend upon these different property relationships, they must naturally be explained differently. Secondly, the political contest between these two social classes underlies much of Ricardo's orientation to distribution. At the time of the writing of the Principles the level of the corn duty was the focus of much debate in Britain. Ricardo accordingly meant to demonstrate the consequences of high duties in his analysis. Thirdly, since land was in fact in the process of becoming a commodity in every sense in the early 1800s, Ricardo was obliged to explain a state of affairs which was likely transitory. Indeed the Principles expresses a threat

to the continuation of accumulation, and thus reflects a conviction on Ricardo's part that the condition of the economy was impermanent. How that state of affairs was to develop, however, clearly depended upon the path of conflict between landlords and capitalists.

Let us now turn to Ricardo's analysis of profits. At the outset we must note a special characteristic of the analysis. Strictly speaking, Ricardo does not have a theory of the determination of profits in the manner of, say, Smith or modern marginal theory. In these latter instances, it is explained how capital itself can be said to create more or less profit. Smith accounts for profit through the competitiveness of different capitals, and modern marginal theory explains profit in terms of the marginal contribution of a capital good to output. In contrast, Ricardo's theory is a residual theory, and explains profit not in terms of capital, but rather in terms of what is left to capital owners after wages and rents are determined. In the important case of profits in farming, it is thus asserted:

The remaining quantity of the produce of the land after the landlord and labourers are paid, necessarily belongs to the farmer, and constitutes the profits of his stock.³¹

An analysis of profit, therefore, is not a matter of ex-

plaining what profit is (as when wages are the cost of producing labor's consumption goods, and rent is the produce on infra-marginal land), but rather how there may be variations in profit, due to variations in the other shares of national income. Accordingly, the chapter on profits in the Principles, appropriately the last of the chapters on distribution, begins, "it remains for us to consider what is the cause of the permanent variations in the rate of profit,"³² rather than with any claim concerning how capital itself entitles the capitalist to a reward.

Another salient characteristic of Ricardo's account of profit is the importance he attaches to agriculture and corn production in the general determination of profits. This view emerges in the Essay originally, where Ricardo's numerical examples, and especially the notable Table, reflect the centrality of the farmer's profits.³³ Also, in correspondence preceding the publication of the Essay Ricardo was to write: "it is the profits of the farmer that regulate the profits of all other trades."³⁴ In the multi-commodity framework of the Principles, however, though farming profits are still of fundamental significance for Ricardo, their precise role is no longer unambiguous, since labor's consumption can no longer be restricted to corn. Sraffa suggests that the Essay

model nonetheless remained Ricardo's "rational foundation of the principle of the determining role of the profits of agriculture," and argues that in this framework one finds the essence of the residual theory of profits.

It is obvious that only one trade can be in the special position of not employing the products of other trades while all the others must employ its product as capital. It follows that if there is to be a uniform rate of profit in all trades it is the exchangeable values of the products of other trades relatively to their own capitals (i.e. relatively to corn) that must be adjusted so as to yield the same rate of profit as has been established in the growing of corn; since in the latter no value changes can alter the ratio of product to capital, both consisting of the same commodity.⁵⁵

In effect, then, Ricardo wanted to determine the rate of profit in abstraction from all relative price movements. Since we have seen above that much of the first chapter on value in the Principles is devoted to developing an invariable measure of value which would allow such a separation of distribution and the determination of commodities' values, we will proceed here as if Ricardo's efforts in this direction were successful, and seek his explanation of profits in their conception as a residual.

In examining the discussion in the chapter on profits, we find that profits in general are a matter of what happens to the profits of the corn farmer. Indeed, variations in profit are solely explained by what happens

to the price of corn and thus rents and wages. Specifically, as the margin of cultivation is extended under accumulation and population growth, the duties on corn imports make inferior land necessary to corn production; labor productivity falls on this land, so that more labor is required for a given quantity of corn, the labor value of corn relative to manufactures is higher, and rent is earned on all infra-marginal land.

If both the manufacturer and farmer employed ten men, on wages rising from 24£. to 25£. per annum per man, the whole sum paid by each would be 250£. instead of 240£. This is, however, the whole addition that would be paid by the manufacturer to obtain the same quantity of commodities; but the farmer on new land would probably be obliged to employ an additional man, and therefore to pay an additional sum of 25£. for wages; and the farmer on the old land would be obliged to pay precisely the same additional sum of 25£. for rent; without which additional labour, corn would not have risen, nor rent have been increased. One will therefore have to pay 275£. for wages alone, the other, for wages and rent together; each 25£. more than the manufacturer; for this latter 25£. the farmer is compensated by an addition to the price of raw produce, and therefore his profits still conform to the profits of the manufacturer.³⁶

That this sort of extension of production of corn leads to a fall in the rate of profit can be seen, Ricardo adds, by noting a farmer's return on an invested capital of 720£. As the farmer takes lesser land into cultivation, or more intensively farms existing land, the same labor can turn out less corn, or the same corn requires more labor, im-

plying that the price of corn rises. When, accordingly, the farmer restores his value of 720£. on each successive piece of land cultivated, with the rising corn price he must pay out more and more wages, so that he is left with a continually smaller and smaller share for his profit.³⁷ Further, these changes are transmitted to manufacturers, since they must also pay the higher corn price, and thus higher corn wages for the same labor required for their production, leaving them as well with a smaller amount for profits. Despite the fact that these changes originate in agriculture, then, every sector of production experiences a like reduction in profits.

Profits as a residual, therefore, depend crucially upon rents, which rise as more land is cultivated,

first, because produce would be of a higher value, and secondly, because they would have a greatly increased proportion of that produce.³⁸

At the same time, though wages increase in terms of corn, laborers still receive their traditional cost of production, so that it is only the extension of the margin of cultivation with the associated rise in rents that causes profit to fall for capitalists. Indeed, we can emphasize the passive role wages play in the fall in profits by substituting the "food and necessities" for labor in production as the inputs purchased by capitalists.

The living individuals who labor, that is, can be ignored, at least in Ricardo's first two editions of the Principles, since the rising price of corn only changes how much the capitalist must pay for the "food and necessities" input, but not how much of those goods labor actually receives. Accordingly, profits depend upon the relationship between landlords and capitalists or between rents and profits.

However, though rents in the early nineteenth century in Britain were typically earned by rentier landlords through the intermediary of the capitalist tenant farmer, whether one sees the landlord as merely a rentier or as a producer of corn himself makes little difference to the relationship between rents and profits. Ricardo emphasized this in insisting in the case of the landlord also functioning as a farmer that rents and profits must at all times be distinguished no matter what the status of the corn producer.

In all improved countries, that which is annually paid to the landlord, partaking of both characters, rent and profit, is sometimes kept stationary by the effects of opposing causes; at other times advances or recedes, as one or the other of these causes preponderates.³⁹

Thus, we can focus our attention upon the relationship between rents and profits in our effort to explain the latter for Ricardo. How should we go about doing this?

Since Ricardo's analysis of the economy is that of an exchange economy, his treatment of distribution depends significantly upon his treatment of the value of commodities that are exchanged for one another. We can, consequently, bring the cost of production treatment of commodities' values that Ricardo employs to bear on his treatment of distribution if we now turn to the issue of how commodities exchange in an economy in which rents are earned as Ricardo has explained. To do that, let us concentrate on the exchange of the corn commodity for any manufactured good, or simply manufactures. In this way we will be able to determine the impact on profits generally from the payment of rent in one sector of production alone. That is, since the profit rate is equalized across all sectors of production - whether corn or manufactures of any kind - by considering exchange between a sector of production in which rent is paid and one in which it is not we will be able to identify the impact of payment of rents on profits in general.

First, however, by way of contrast, let us consider the character of exchange between two sectors of manufacturing production for Ricardo. In this case, surprisingly, Ricardo departs from both what many others of his time believed and what might be thought appropriate to a political economist who read Smith and developed

much of his own thinking from that reading. Specifically, for Ricardo any extension or limitation of the exchange or trade between different sectors of manufacturing production is without any effect on the profits of either sector, assuming both pay the same share of wages out of the total value produced. That is, if one holds constant possible differences in wage good costs that might arise from an extension of production, then though the division of labor might become more advanced as production is extended, profits remain unaffected for both capitalist manufacturers. In terms of the exchange of commodities whose values are established by their cost of production, each capitalist receives the same labor content in trade for what he gives up to the other capitalist, and should the conditions of production change for either producer, the difference in the number of commodities that would need to be exchanged for the trade of equal labor contents would be strictly proportional to the change in the conditions of production. Profits, again, are not created by any development of trade although it might increase the division of labor, and so adjust the conditions of production of commodities.

Smith, of course, argued pointedly in the Wealth of Nations that profits did arise from the extension of exchange, precisely because the division of labor was in-

creased.⁴⁰ However, since he relied on the 'adding-up' approach to commodities' values, he was unable to conclude that these values changed in proportion to change in their conditions of production - Ricardo's "difficulty of production." He was unable to conclude, that is, that if, say, it became less difficult to produce some given commodity in terms of the labor expended upon it, through an advance in the division of labor, then others who traded for that cheaper commodity in equal labor content terms would still receive a commodity whose value had been reduced strictly in proportion to its greater ease of production. Put differently, those trading for such a commodity would not receive a commodity whose value had fallen more than the increase in its ease of production, so that they would not be so fortunate as to find themselves in a position to give up a lesser quantity of their own goods than if it had. By contrast, were they in that fortunate position in which a lesser quantity of their own goods would need to be traded for the cheaper commodity, then indeed a residual number of goods would remain to those who traded for that commodity. This residual would be profit, which would be equalized across all sectors of production. Ricardo, however, does not explain the appearance of profits in this way.

Interestingly enough, Smith's claim that profits

were created with the extension of trade and increases in the division of labor was repeated by James Mill and Robert Torrens. These individuals were contemporaries of Ricardo, Mill moreover being teacher and friend to Ricardo in his early years as a political economist. Accordingly, it is some importance to establish why Ricardo did not adopt the Smithian view on profits, in order to be clear about the doctrine developed in the Principles. What, then, was the basis of Mill's and Torrens' view?

Mill and Torrens put forward the Smithian position in their replies to William Spence's attack on the progress of trade and commerce in early nineteenth century Britain. Since Spence employed Physiocratic conceptions of wealth arising solely in agriculture in his own work, it was natural for Mill and Torrens to turn to Smith who had already critiqued the Physiocrats in the Wealth of Nations.⁴¹ They accordingly defended commerce and manufacturing through repetition of Smith's claim that wealth was created in all sectors of production.

That Ricardo did not adopt this position can be explained in two ways. First, as already suggested, his own development of a more rigorous value theory than Smith had possessed made the division of labor creating profits position inaccessible to him. Secondly, as is clear from a casual perusal of the Principles, Ricardo

was interested in undermining the landlords' status in production, and not with elaborating arguments which would enhance that status. The Smithian view, however, was contradictory in this respect. While on the one hand it implied manufacturing and commerce were also important in overall production, on the other hand, it undercut the Physiocratic policy of taxing only landlords. Thus, if sectors of production other than agriculture were also productive of wealth, the recipients of net income there too could be taxed. Ricardo never expressed this prescription, however, and the Principles consistently neglects the accompanying claim that profit could be created solely through an extension of trade and an increase in the division of labor.

Let us return, then, to our original project of examining exchange between a sector of production in which rent is paid and a sector in which it is not. As we saw above, though the labor content of corn is established on no rent land via the time required to produce a particular quantity of corn, so that rent does not enter into the cost of production of corn, the fact that the labor time of producing this corn quantity will increase as the margin of cultivation is extended implies that in fact rent will enter into the total value of corn exchanged for manufactures. Thus were it that all corn was

originally produced on land of the same quality, no rent would be paid, and the cost of production of all corn exchanged for manufactures would strictly reflect the labor embodied in its production. This would be indistinguishable from the case of trade between manufacturing sectors alone. However, if later were some corn to be produced on land of a lesser quality, while some were still produced on the land of better quality, then since the value of corn is determined on the lesser land, where a day's labor produces less than a day's labor on better land, the value of corn would increase, and manufacturers would need to trade a greater quantity of their own goods for the same amount of corn. The additional quantity of these manufactures traded to producers of corn would of course be received by individuals in their capacity as landlords as a payment of rent.

Generally, then, as rents increase, profits fall. At the same time, should rents decrease, profits will rise. Let us focus on this latter possibility. What exactly happens as profits as a residual rise when the margin of production of corn is withdrawn? On the surface, profits only rise, because a smaller amount must be paid to land as rent. Yet according to Ricardo's understanding of the values of commodities, a greater

residual sum of commodities is left to the manufacturer, because a smaller amount of these goods must be traded in order to get the same quantity of the corn commodity. Moreover, these residual commodities are only a source of profit to the manufacturer if the value of the corn acquired has fallen more than the increase in its ease of production (though the use of better land in the withdrawal of the margin of production). Otherwise, just as in the case of the trade between two manufacturers, following an increase in the division of labor which cheapens one of the two commodities being exchanged, the trade of corn for a manufactured good, following an increase in the ease of corn production, would leave the manufacturer trading a smaller amount of his own goods for the cheaper corn, but yet finding an increased residual of his own commodities that would be strictly proportional to the increased ease of corn production. Then the manufacturer would give up his own goods produced at their cost of production and receive corn produced also at its cost of production, and accordingly be no better off, nor earn a profit. Therefore, if for Ricardo profits only rise when rents fall, and profit is an increased residual of commodities over and above what is involved in the increased ease of corn production, how is it that the

value of corn falls below its cost of production when rents fall?

We have already seen that land does not earn rent according to Ricardo's cost of production treatment of corn. Consequently, if profits only rise when rents fall for Ricardo, the value of the corn acquired by the manufacturer can only be less than its cost of production when the reduction in rent is greater than the increased ease of production involved in taking inferior land out of production. Let us translate this into the situation in which profits are initially zero and then become positive. In this case rents on better land are at the outset strictly proportional to the additional quantity of labor required on lesser land for a given quantity of corn. Then, as the margin of cultivation is withdrawn - and as profits begin to become positive - rent must fall more than the additional quantity of labor required on lesser land is reduced. That is, while rent on better land is strictly proportional to the additional labor required on marginal land when profits are zero, when profits are positive then the rent on better land is less than the additional labor required on marginal land.

How does this reduce the value of corn, established on marginal land below its cost of production? From

the perspective of the landlord who owns both kinds of land, though rents may fall as profits rise, rents are still paid, and they must be paid by contract with the tenant farmer such that they are equal on better land to the additional labor required on marginal land for a given quantity of corn. From the perspective of the tenant farmer, on the other hand, should rents fall but yet be paid according to agreement, any reduction in rent below the additional labor required on marginal land can be made up by setting the value of corn on that marginal land below its cost of production. By averaging his return over the two pieces of land, that is, the tenant farmer can satisfy the landlord's claim, still himself earn the general rate of profit, and then trade the commodity he produces to manufacturers for less than its cost of production.⁴²

While the withdrawal of the margin of cultivation thus reduces rents faster than the additional labor on marginal land is reduced, the relationship between landlords and tenants permits rents to be paid as before, so that rents are only reduced in the aggregate relative to profits. Strictly speaking, then, rents are no longer proportional to the additional labor on marginal land when profits are positive, though they appear to be so because it is not recognized that profits only in-

crease when manufactures can trade for corn at a value below its cost of production. Ricardo, however, in his labor content cost of production analysis of commodities' values did recognize this, and accordingly knew that on his assumptions profits could only be created by driving down rents in general. Moreover, that rents, as he insisted, were not paid on a cost of production basis meant it was indeed possible to reduce them as the extent of the trade decreased between that sector in which they were earned and those sectors in which they were not. Rather than being the pessimistic political economist, then, Ricardo was the rational optimist. He understood in value terms how residual profits were created, and he identified in the political struggle over corn duties an opportunity for increasing profits through reduction in rents - without any increases in labor productivity involved in changes in the division of labor. Indeed, because this discovery was of such an overwhelming importance to him, when he turned to the question of additional sources of profit in the last edition of the Principles, and to the question of changes in the division of labor, he was unable, as we are about to see, to work out his argument as fully as he had in his first two editions. Let us now turn to the Principles of the third edition.

The analysis of our first chapter above suggests that the account of profits in the first two editions of the Principles is not operative in the third. In particular, it was found that the introduction of machinery in production, and the replacement of circulating capital by fixed, circumvented the rise of wages with a rising corn price, allowing capitalists to maintain net income despite limited land and the extension of the margin of cultivation. Moreover, since this process results in involuntary unemployment of labor, the demand for corn also falls, counteracting the forces leading to an extension of the margin of cultivation. Wages and rents, then, would both decline as a share of national or gross income, since the introduction of machinery permits capitalists to produce the same net income out of a reduced gross income.

The added chapter on machinery also produces a new conception of wages in the Principles. Recall that it is Ricardo's view in the first two editions that wages can be determined in a manner analogous to the determination of the value of any other commodity. Labor has a cost of production then, since it is produced from "food and necessaries" consumed by laborers, and the value of these commodities is determined in cost of production terms. Moreover, any labor that is produced

must itself be consumed in production, since it represents no more than the commodities that it consumes, which, in order to earn their value as commodities, must be purchased as inputs to production at their value. There is nothing, consequently, in Ricardo's account of the determination of the price of labor, wages, in the first two editions of the Principles to distinguish it from what is involved in the determination of a commodity's value.

In the third edition machinery chapter, however, Ricardo allows that his former position on the impossibility of involuntary unemployment is mistaken, so that labor may well find itself involuntarily unemployed when displaced by machinery. Yet seemingly unbeknownst to Ricardo, this admission disturbs the cost of production treatment of wages. That is, while the Say's Law handling of other commodities remains in force, such that commodities found in excess supply in one market are quickly channelled as 'savings' into production in other markets as 'investments,' involuntarily unemployed labor which represents only a particular quantity of "food and necessaries" is not redirected. Therefore, since its cost of production is not recouped in a sale in some other market, Say's Law can only be preserved for Ricardo at the expense of sacrificing the cost of produc-

tion interpretation of the determination of wages.

As we have seen in the previous chapter, Ricardo goes to some length to account for the possibilities of labor's re-employment. Nonetheless, as long as involuntary unemployment is allowed to exist, full re-employment is clearly ruled out. Accordingly, two points can be said to follow which are central to Ricardo's new position on wages. First, the customary or habitual element in the determination of wages becomes central to an understanding of their determination. Specifically, as long as there is social debate over how labor may be employed in the service sector, determination of the wage becomes fundamentally a social matter rather than a simple function of some objectivist cost of production conditions. Secondly, compensation for labor no longer remains set at a given level in virtue of a traditional conception of the minimum subsistence required for the reproduction of labor, but is subject to as much variation as the range of re-employment practices occasioned by social debate may generate.

What is the status of rent in Ricardo's third edition? Though the added chapter on machinery does not change the manner in which rent is determined in the Principles, it does change the significance of rent in the determination of profits. We have seen that when

capitalists always have the opportunity to replace circulating capital with fixed, wages will not increase on account of higher corn prices. Rent, then, does not increase since corn consumption does not increase. Put differently, the increase in the price of corn and thus rent is forestalled by the expulsion of labor from production which entails a comparable withdrawal of the margin of cultivation. Moreover, should the existence of unemployed labor reduce wages paid to those still employed, the demand for corn, and thus its price, might fall still further, implying further reductions in rent.

More generally, what is significant in the changes brought about by the addition of the machinery chapter is the character of the residual determination of profits. In the first place, it is no longer variation in rents that leads to variations in profits, since the introduction of machinery enables capitalists to circumvent such effects. In the second place, with wages no longer explained by the cost of production of labor, variation in wages is possible, and this now will be the only source of possible variations in profits for Ricardo. It is important, therefore, to understand precisely how wages may vary if we are to see how profits as a residual are determined in the changed Principles of the third edition. In this respect, we need to fo-

cus attention on the customary or social element in wage determination, in order to explain how wages may fluctuate above and below the traditional subsistence level of the first two editions.

First, the latter half of the added machinery chapter provides us with an understanding of how wages can be socially determined at levels below what was formerly treated as subsistence. Given that with involuntary unemployment wages will indeed be below traditional subsistence, Ricardo advances here various proposals for labor's re-employment in services, which, should society implement, would form the basis for establishing a new level of wages. Indeed, laborers themselves are tentatively offered some say in reaching a consensus on which possibilities ought to be pursued, albeit within the constraint of final decision made by earners of net income.

Independently of the consideration of the discovery and use of machinery ... the laboring class have no small interest in the manner in which the net income of the country is expended, although it should, in all cases, be expended for the gratification and enjoyment of those who are fairly entitled to it.⁴³

The independence of the description of the proposals that follow this opening statement of the latter half of the chapter from the analysis of the effects of ma-

chinery introduction in the first half of the chapter emphasizes that policy considerations, as opposed to what might be termed scientific ones, are at hand. Thus, should the wages and conditions of employment in, say, menial service be preferred to the wages and conditions of employment in military service, laborers are invited to express this preference for re-employment, assuming of course that those receiving net income that is to be spent on such re-employment are indifferent between the alternatives. In general, then, when involuntary unemployment reduces the level of wages below subsistence established at full employment, wages are re-determined via a social process that draws upon what can be agreed to be an acceptable or customary standard of living for labor.

Secondly, from an early point in his work, Ricardo had contemplated with some dread those social forces that might establish wages at levels above subsistence. In the Essay he had asserted that should society encourage a high real wage, then less would be left for profits.⁴⁴ In the Principles it is warned from the first edition that "interference of the legislature" with "the laws by which wages are regulated" can deprive those who receive net income of their wealth.

The clear and direct tendency of the poor

laws, is in direct opposition to these obvious principles: it is not, as the legislature benevolently intended, to amend the condition of the poor, but to deteriorate the condition of both poor and rich; instead of making the poor rich, they are calculated to make the rich poor; and whilst the present laws are in force, it is quite in the natural order of things that the fund for the maintenance of the poor should progressively increase, till it has absorbed all the net revenue of the country⁴⁵

While in the first two editions Ricardo was reasonably confident that wages would be determined by "obvious principles," namely, those consistent with the cost of production approach elaborated in the wages chapter, in the third edition disruption of the cost of production framework for wage determination, such "obvious principles" lose their immediacy, while social contention over involuntary unemployment is left in their absence. It is entirely possible, therefore, that any and all gains made by owners of stock be eyed by those whose traditional subsistence is suddenly threatened, as indeed became evident with the appearance of the Ricardian socialists.

Thus, with variations in rent no longer significant in the third edition of the Principles, it is the variations in wages that will create inverse variations in profits as a residual. In contrast to the analysis of residual profits in the first two editions, however, these variations are not clearly tied to the extent of

the exchange between capitalists and laborers for Ricardo. Thus while in the first two editions accumulation of capital and growth of population brought an extension of the margin of cultivation with its attendant rise in rent, in the third edition, accumulation of capital is not necessarily associated with any specific changes in wages. On the one hand, the downward pressure on wages due to involuntary unemployment is likely counteracted in Ricardo's view both by some re-employment in services in the short run and by population readjustments in the long run. On the other hand, there is little reason to see wages consistently tend upwards with accumulation when that accumulation is associated with continued replacement of circulating capital by fixed. Wages, then, may at most fluctuate with accumulation, so that profits as a residual fluctuate as well.

Further, if it is variations in wages in the third edition of the Principles that create variations in profits, then should we suppose Ricardo consistent in his analysis of profits as a residual, then we must expect there to be an input to the production of labor which is unaccounted for in cost of production terms, much in the same way land was found to unaccounted for in the determination of the value of corn. Profits would accordingly result from the exchange between two sectors of pro-

duction, one in which manufactures are produced by capitalists and one in which labor is produced by laborers. Specifically, capitalists would be able to acquire labor at a value below its cost of production, and thus be in a position to exchange a smaller amount of their own goods for labor than would be the case when profits were zero and labor was produced at its cost of production. Is there, thus, some input to the production of labor which is not compensated in cost of production terms?

It must be admitted at this point that the inconclusiveness of the third edition of the Principles on those forces that determine the wage suggests that here Ricardo possessed less of an understanding of the nature of residual profits than he did in the case of exchange between manufactures and agriculture. While his position on wages in the added machinery chapter places an additional emphasis on the customary or social element involved in wage determination, the fact remains that there are no modifications of the wages chapter itself in the third edition, so that it is difficult to say that Ricardo was fully aware of the new status of wages in the changed Principles. Moreover, in the case of the production of labor there are additional complexities absent from the analysis of corn production, since the role of land as an input to the latter is not clearly

paralleled by any particular input to the production of the former. Insight into the creation of residual profits in this case, then, would require considerable understanding of the nature of labor and its production - understanding which seems lacking in the mixed account of wages that results from the added machinery chapter.

Let us note, however, that the basic elements of an analysis of profits as a residual from the exchange with labor are present in essence in the last edition of the Principles. First, while on the one hand Ricardo maintains the cost of production framework for labor in his own mind, on the other hand he begins to reassess those social elements in the determination of wages which enable wages to fluctuate. Thus, that particular combination of elements that appeared in the account of the value of corn - cost of production in the case of labor and implements plus the peculiarly social dimension to rents - is reproduced implicitly in the account of the value of labor, where "food and necessaries" are still to be understood in cost of production terms, while the social dimension to wages is given new prominence. Secondly, the very context of machinery introduction, namely, maintaining profits in the face of rising wages indicates that Ricardo had linked wage variations with profit variations. Since, as we saw in the previous

chapter, the conflict between landlords and capitalists is displaced in the third edition by the conflict between laborers and capitalists, Ricardo could hardly have been unaware of the general basis upon which residual profits were created in the changed Principles. Finally, since in the first two editions the goods consumed by labor proxy labor itself, it is a small step to re-insert labor itself in the argument of the third, after Ricardo has satisfied himself on the relationship between agriculture and manufactures. Indeed, if the division of labor is held constant initially in the explanation of how profits may be created through reductions in rent, then given that result, it is possible to go on to examine the further consequences for profits of replacing labor with machinery.

What is it, then, that can be said to go unpaid in cost of production terms in the production of labor itself? Since laborers do not own any significant amount of property with which labor is produced, as do landlords in the ownership of land for corn production on the part of their tenants, we must look for an input to the production of labor which is not tangible in the manner of land. We might note, consequently, that as the social contest between landlords and capitalists in the early 1800s focused on the status of land, there is likely

something comparable to land, though less concrete perhaps, which was the focus of the historical contest between laborers and capitalists which followed in subsequent years. Indeed, that which was at issue historically in Britain between capitalists and laborers was the question of the organization of laborers in trade unions, associations, etc. Laborers found such combinations in their interest, while capitalists opposed them. Moreover, it cannot be denied that the manner in which labor is organized in the laboring community and family affects the character of the production of labor. At the same time, such organization raised wages and reduced profits, while its prohibition or disruption possessed the opposite result. Thus it is reasonable to consider this the input to the production of labor, which is not rewarded in cost of production terms, and which allows labor to be produced below its cost of production, so that residual profits are created for capitalists. Let us examine this possibility more fully.

While there are different levels at which the social organization of laborers may be understood, for example, family and community organization, as well as workplace association, it is possible to explain the general role of such social organizations in the reproduction of labor for the purpose of understanding the creation of profits.

Thus, for labor to be produced, laborers, their families, friends, co-workers, neighbors, etc. must function together in a social environment that enables individual laborers to appear at the point of production in a condition permitting work. That is, though the individual laborer is employed as a single person, and receives a wage for "food and necessities" sufficient for self-support, or perhaps support of immediate family as well, nonetheless that individual's working ability depends upon social factors that are distinct from consumption in addition to that consumption. Put differently, while the wage is paid individually, because the laborer comes from a social environment, labor done is inescapably social in character. Once, then, one replaces the commodities consumed by labor with laborers themselves at work in production, as Ricardo implicitly does in his third edition, this additional dimension to the production of labor emerges.

Specifically, when involuntary unemployment appears with replacement of labor by machinery, the capacity of individuals to survive without wages depends upon the ability of the laboring community to re-structure itself to a new form of distribution of goods consumed that are yet acquired by others. Should, for example, women's labor replace that of men (as was in fact the case during

parts of the nineteenth century), then developments in family structure are necessary for the appearance of women at the point of production, as well as for the continuation of the family at often lower wages. These developments, however, are not compensated for in the payment of wages, though they represent an essential input to the production of labor. Indeed, that Ricardo was generally insensitive to this aspect of labor's production is evident from his reliance on the Malthusian population law for changes in the production of labor. The analysis of Malthus, however, hardly begins to approximate an account of changes in labor's production. Thus again, though Ricardo possessed the essentials of an extension of his residual profit analysis in the third edition of the Principles, it cannot be said that he fully grasped its details.

How exactly, then, does Ricardo's theory of profit operate in the changed third edition of the Principles? As before we assume that simple exchange between different manufacturers alone does not create profits though the trade may become extensive. That is, when the division of labor becomes the source of profits, it is not as Smith imagined, that is , in the pure extension of trade, but rather the division of labor becomes important for profits when labor works with more machinery, and some

individuals are discharged from production. In this case wages fall and profits rise. While Ricardo argues in his numerical example in the "On Machinery" chapter that profit or net income is constant while gross income falls, involuntary unemployment must create a downward pressure on the wage, so that by paying less to those still working capitalists see profit rise.

In order to see exactly how this happens, let us briefly review the analysis of residual profits in the first two editions. First, we saw that profits resulted from the residual of commodities left to the manufacturer after exchange with the corn producer when corn could be acquired at a value below its cost of production. Secondly, this state of affairs could come about if, as the margin of cultivation was withdrawn, the value of corn fell more than its cost of production decreased, or more than the increase in the ease of producing corn. Thirdly, since rents were not paid on a cost of production basis, and since for Ricardo it is the fall in rents that leads to the rise of profits, rents must fall more than does the additional labor on the last land still in production, so that tenants, in order to pay rent according to contract, average their returns on good and inferior land, and price corn from the latter below its cost of production.

To explain profits in the case of the exchange between capitalists and laborers, we can proceed by making an argument analogous to the one above. First, in order that the capitalist make a profit, a residual of his commodities must be left after acquiring labor, and the value of labor must be below its cost of production. Secondly, this state of affairs may come about if, as the extent of exchange between capitalists and laborers decreases with fewer individuals working after introduction of machinery, the value of labor falls more than its cost of production decreases, or more than the increase in the ease of producing the "food and necessities" consumed by labor. Recall that the introduction of machinery cheapens these goods in labor content cost of production terms, so that their values fall, as did that of corn.

In order to make our third point, it is necessary to be more explicit about the role of social organization in the reproduction of labor. Thus, just as they are different qualities of land used in corn production, so there are different qualities or degrees of social organization among families, neighborhoods, or other social groups that are instrumental in labor's production. Accordingly, we can suppose that better organized social groups in effect earn a rent, in that their superior social organization enables them to use the "food and necessities"

acquired in exchange more efficiently than those less well organized social groups, which are only able to survive as laborers upon the goods they consume. Of course, these, what we may call, rents from social organization are not paid on any cost of production basis, and indeed are not manifested as additional consumption as are those rents earned by landlords. Rather, just as the landlord with better maintained land can make his inputs to corn production go farther, so that he can enjoy a residual rent over the less efficient landlord (or those with simply lesser land), so also the better organized social group can make their "food and necessaries" inputs go farther, so that they can enjoy a residual rent over less efficient social groups, though this rent is manifested as a higher quality of life. That is, the landlord's rent residual is corn which can be exchanged for other commodities, while laborers' rent residual is labor in the community apart from workplace production, and can only be consumed in non-laboring activities.

Thirdly, then, when wages fall with machinery introduction, since it is not the value of "food and necessaries" that is initially reduced, but rather the amount of these that labor receives that is reduced, the rents from social organization fall. That is, when total wages fall before machinery introduction cheapens the value of

"food and necessities," labor simply receives a smaller quantity of these goods to which it applies its social organization, so that should more efficient social groups generally apply their collective talents in a fixed proportion to the commodities they consume, having less of these goods puts some of that social organization to waste, or simply reduces its implicit worth. In more concrete terms, if, say, a given family has less to eat, then they are less capable of functioning as a family unit.

At the same time, however, the introduction of machinery reduces the value of "food and necessities," and to some extent counteracts the fall in rents. Nonetheless, should capitalists be able to acquire labor below its cost of production, the fall in rents must exceed the cheapening of commodities, in order that, as in the case of the landlords' rents, the rents from social organization are in effect transferred to the capitalist as profits. Again, because these social organizational rents are not paid on a cost of production basis, this creation of residual profits is possible. How is it, however, that the value of labor - for Ricardo just the value of the commodities consumed by laborers - is reduced below cost of production?

We can argue here too, as in the case of the rela-

tionship between tenant farmers and landlords, that institutional features of the social community are preserved. Thus, just as the contractual arrangement between tenant and landlord led to the former valuing corn below its cost of production on marginal land, so the laboring community maintains those at the margin of the mass of laborers in a condition adequate to employment below their cost of production. That is, if rents from social organization have traditionally been proportional to the added quality of life enjoyed by better organized social groups over less efficient ones, as these rents are reduced, those at the social margin perceive a lesser quantity of "food and necessities" essential to their support. However, the cost of production of this labor remains at the original quantity of these goods consumed, since it constituted subsistence at the social margin. Accordingly, groups at the social margin of the mass of labor receive additional goods to make up this difference from better-off social groups through charity of goods, organizational assistance, etc.

In general, then, the capitalist earns a positive profit by discovering an input to his production which permits him a residual of his own commodities after exchange, and which is acquired below its cost of production. Labor, as corn, is such an input, though laborers

do not recognize the value of labor to be below its cost of production. Since the social organizational input to the production of labor is not rewarded on a cost of production basis, and further, because it is relatively intangible, labor generally does not understand the actual character of its own reproduction. Put in other terms, as long as labor sees its own reproduction in the commodity terms of "food and necessities," it does not identify the source of profits.

The profits, thus, that result in the third edition analysis of the exchange with labor are a consequence of the replacement of circulating capital with fixed, or of the replacement of laborers with machinery. Whereas in the first two editions Ricardo recognized that profit would be created if the landlords' interest was denied in Parliament and in other arenas of social conflict, so in the third edition he begins to grasp the opportunity to create profits in the downward movement of wages made possible through a well-managed confrontation with labor over employment and the standards of subsistence.

Again, Ricardo was hardly the pessimist he has often been said to be. Rather he was an insightful theoretician of profits who pursued the question of their creation with a conviction that they could be increased through the com-

bined political efforts of the capitalist class. Further, he possessed the flexibility to rigorously put to work the lessons of Physiocracy on the one hand, while on the other recognizing the outlines of an economic landscape that was only coming into being, and which would preoccupy those afterward in political economy. In the conclusions that are to follow below, let us speculate briefly on the particular consequences of Ricardo's analysis of profits for his theory of value.

FOOTNOTES

1. Dobb, op. cit., pp. 247-272. Also Ronald L. Meek, "Mr. Sraffa's Rehabilitation of Classical Economics," in Ideology, op. cit.
2. Works; Sraffa, Production, op. cit.
3. Works, Vol. IV, p. 375.
4. Ibid., p. 373.
5. Samuel Hollander's recent analysis of the simultaneous development of Ricardo's theory of profits with his explanation of the relative values of commodities must be rejected on the basis of the argument presented. For discussion of this point, Hollander, Ricardo, op. cit.; Pierangelo Garegnani, "On Hollander's interpretation of Ricardo's Early Theory of Profits," Cambridge Journal of Economics, Vol. 6, No. 1; Krishna Bharadwaj, "On a controversy over Ricardo's Theory of Distribution," Cambridge Journal of Economics, Vol. 7, No. 1; Hollander, "Professor Garegnani's Defence of Sraffa on the material rate of profit," Cambridge Journal of Economics, Vol. 7, No. 2; Garegnani, "Ricardo's early theory of profits and its 'rational foundation'; a reply to Professor Hollander," Cambridge Journal of Economics, Vol. 7, No. 2.
6. Works, Vol. I, pp. xxxiii-xxxiv.
7. Ibid., Vol. IX, p. 358.
8. Ibid., Vol. I, pp. xxx-xxxvii.
9. Ibid., Vol. VIII, p. 194.
10. Ibid., Vol. I, p. 17.
11. Ibid.
12. Ibid., p. 46.
13. Ibid., Vol. IX, pp. 355-356.
14. Ibid., Vol. I, p. 13.
15. Ibid.
16. Ibid., pp. 20-22.

17. Ibid., p. 24.
18. Ibid., pp. 30-43.
19. Ibid., Vol. VIII, p. 279.
20. Ibid., Vol. IV, p. 19.
21. Ibid., Vol. I, p. 93.
22. Ibid., p. 12.
23. Ibid., p. 21.
24. Ibid., p. 93.
25. Ibid., pp. 96-7.
26. Ibid., p. 77.
27. Ibid., p. 78.
28. Ibid., p. 67.
29. Ibid., Vol. IV, p. 18n.
30. Ibid., Vol. I, p. 70.
31. Ibid., p. 112.
32. Ibid., p. 110.
33. Ibid., Vol. IV, p. 17.
34. Ibid., Vol. VI, p. 104.
35. Ibid., Vol. I, p. xxxi.
36. Ibid., pp. 111-12.
37. Ibid., pp. 113-14.
38. Ibid., p. 125.
39. Ibid., p. 60.
40. Adam Smith, An Inquiry into the Nature and Causes of the Wealth of Nations, edited by A. Skinner, (Middlesex, England: Penguin, 1970), Vol. I, Chapter III.

41. For a discussion of this issue, see John P. Henderson, "Malthus and the Edinburgh Review," in Research in the History of Economic Thought and Methodology, Vol. II, edited by W. J. Samuels, (Greenwich, Connecticut: JAI Press, 1984), pp. 107-124.

42. For example, should rent on a given piece of infra-marginal land have fallen to 8 hours of labor on corn production, yet the additional labor required on marginal land be 10 hours, then the tenant may pay 9 hours rent to the landlord, set the value of corn on marginal land so as to earn 9 hours of additional labor, and yet still sell corn from both pieces of land for a sum of 18 hours of labor. In this case corn is sold below its cost of production by 1 hour of labor.

43. Works, Vol. I, p. 392.

44. Ibid., Vol. IV, p. 11.

45. Ibid., Vol. I, pp. 105-6.

CONCLUSION

In the analysis and interpretation of Ricardo's theory of profit in the last chapter, it was found that two different logics of price determination functioned together to produce a coherent account of distribution in both the first two editions of the Principles and the third. In the first case, profits as a residual of commodities resulted when the value of corn fell more than its cost of production. This was possible, in Ricardo's view, because rents were not paid on a cost of production basis. In the latter case, profits as a residual resulted from capitalists' purchase of labor at a value below its cost of production. This again was possible on the basis of Ricardo's view, since his third edition account of wages opens up the possibility that labor will be rewarded with wages below its cost of production. In what follows, then, the nature of this sort of arrangement, whereby an input to capitalist commodity production, will be examined more fully.

The general theory of profit that appears in the two distribution accounts of the Principles can be summarized in its most basic terms by focusing on the difference between a sector of production in which all inputs are paid

according to cost of production and one in which some inputs are not so rewarded. In the former instance, namely, fully capitalist commodity production, all identifiable inputs necessary for the production of an output are purchased themselves as commodities. All inputs, then, have a cost of production in the sense of a labor value established objectively in the market by the "difficulty of production." Capitalists, accordingly, must recoup a determinate value in marketing their output, in order to remain competitive with other capitalists, given the free flow and mobility of capital. In the latter instance, by contrast, namely that of either agricultural production or labor production in the analysis of the last chapter, it is not the case that all inputs to production are purchased as commodities. Not all inputs, then, have a cost of production or a labor value established objectively in a competitive market. Consequently, those involved in this sort of production are neither obliged to recoup a determinate total cost of production, nor necessarily aware that, from the point of view of capitalist commodity production, there exists a cost of production to the input they provide to the latter sector. Let us, then, distinguish these two sectors, respectively, the fully valorized and incompletely valorized sectors of production.

Profits for Ricardo, therefore, result from exchange between fully and incompletely valorized sectors of production. On average, capitalists can only trade when they restore their cost of production or earn positive profits. On the other hand, those in incompletely valorized sectors of production, because they possess inputs which need not be purchased, may continue to exchange with capitalists when the value of what they receive is less than the cost of production of what they provide. Indeed, those in this special position do draw down their stock of non-commodity inputs in some fashion. In Ricardo's theory, this is a matter of rent payments falling below the level at which they would be paid if profits were zero, whether we speak of traditional agricultural rents to landlords in the first two editions of the Principles, or of the social organizational rents associated with certain groups of laborers in the third edition. Presumably, then, at some point the persistence of positive profits, with the concomitant transfer of rent to capitalists, has some impact upon those in the incompletely valorized sector. Ricardo, however, does not begin this question, since his entire emphasis rests upon the fate of profits.

We should also note that Ricardo does little more than consider the possibility that rents will fall and

so create profits. Though it was his intuition that there was something unique in, particularly, the trade between capitalists and landlords (via tenant farmers), he himself did little more than set out the boundaries of the interaction in the market between the capitalist sector of production in which no rent was paid and that capitalist but incompletely valorized sector in agriculture in which it was. That is, that the tenant paid a rent on a basis other than his cost of production meant that were it possible that rents fell faster than the increase in cost of production through withdrawal of the margin, then profits would result when capitalists in fully valorized sectors, for example, manufacturing, exchanged commodities with the incompletely valorized sector. Empirically speaking, however, it seemed accepted in Ricardo's time by man that as stock accumulated and the population grew rents would swallow up an increasing share of national income. Conversely, then, were the margin of cultivation withdrawn by any means, profits could be expected to take an increasing share of national income. Ricardo, thus, sought an explanation for these more than proportionate changes in distribution for given changes in the extent of trade, and came to focus on the distinct character of price determination in distribution. That rents, then, were not paid on a

cost of production basis meant that land was an input of special character in corn production, so that trade with this sector on the part of those sectors of production where no such input existed possessed unique opportunities for the creation of profits. Ricardo concluded, as rents fall, profits rise.

In the third edition focus on the relationship between laborers and capitalists, Ricardo only began to grope toward the explanation of another source of profit. While again it was not entirely clear how the exchange of labor for subsistence commodities resulted in profit creation, nonetheless the admission of technological unemployment revealed new possibilities to Ricardo in the determination of wages. Thus, since the precedent for analysis of distribution on an other than cost of production basis had been established in the initial formulations of the profit theory of the first two editions, it is fair to complete the details of an exchange between a fully valorized capitalist sector and an incompletely valorized labor production sector, and to term the resulting account Ricardian. Specifically, the analysis of a social organizational rent, while not elaborated by Ricardo in any way whatsoever, still issues from the intuition that those earning rents might find themselves rewarded differently than those providing inputs to production on a cost of production basis.

That is, the very possibility that wages might be paid below the cost of production of labor was created when Ricardo glimpsed the fact that technological unemployment placed the compensation of labor on a new footing than had been the case in the argument of the first two editions of the Principles.

These conclusions, it should be recalled, derive from the differential reading of the Principles' distinct distributional accounts. At the same time, the distinguishing of the first two editions from the third was made possible by the analysis of the impact of the added machinery chapter on the original distributional conception of the Principles. Thus, though Ricardo's theoretical development has been understood to have involved contradiction and adjustment, nonetheless consistency has been assumed across the three editions in terms of an identical theory of profits as a residual. This single view of profit, seen in two distinct contexts, then, has permitted a deeper investigation of the nature of that account through the analysis of completely and incompletely valorized sectors of production.

APPENDIX

Ricardo and Locke, Sraffa and Wittgenstein

In this exploratory discussion of David Ricardo's thought, the historical and philosophical foundations of Ricardo's work will be investigated, in order to establish the general character and significance it possesses. This discussion will operate on two different levels. In the first place, the origins of Ricardo's own efforts are explored in terms of the figures and traditions of the period that began in the latter half of the seventeenth century. In the second place, the contemporary Ricardian interpretation of Ricardo's work is briefly considered, through an evaluation of Piero Sraffa's role in re-establishing Ricardo to modern political economic study. The advantage of this double discussion, we will see, rests with the understanding it renders of the different principles of investigation in the Principles. At the same time, approaching Ricardo in this way permits a distinct interpretation of the latter's work to emerge in all its consequences. In the succeeding chapters, the understanding produced here will be pursued first in terms of textual developments of the Principles, and then in terms of the theory of profits Ricardo conceptualized.

Since David Ricardo's work is representative of Classical political economy, and since Classical political economy is a component of Classical Liberalism, it is important to briefly examine the proportions and dimensions of the latter, in order to place Ricardo's work in its original context. The significance of this work, that is, depends in part upon its conception in the mind of its author. While we cannot identify Ricardo's more philosophical intentions, we can describe the climate of thought of his time, which must in some degree have determined those intentions. Once, then, we have established the general character of Ricardo's program, we will be in a position to evaluate the extent to which he was able to fulfill this program.

Classical liberalism, then, can basically be understood in terms of natural rights philosophy, individualism, and arguments for the limitation of the sovereign power of the state through constitutional government. In Britain, Classical Liberalism developed in the revolutionary period that culminated in the ascendancy of William and Mary to the British throne in 1688, and saw its perhaps most original and fundamental expression in the work of John Locke (1632-1704). Locke, particularly in his Two Treatises of Government, probably written as early as 1681 but published in 1690, set out to defend

the revolution, in the process drawing upon a tradition of political thought that extended back through Thomas Hooker to Thomas Aquinas. He was the first to clearly state the ideals of the revolutionary period, including the specific civil liberties - freedom of thought, of expression, and of association - and the security of property, and was also the most direct in linking these to their means in constitutional government, that is, government that must work within limits set by law and a legislature established by an informed electorate.

At the core of Locke's political thought was a fundamental postulate about the general nature of social value, namely, that all value ultimately inheres in the satisfactions and realizations of the individual human personality. Put differently, all value ultimately is explained by the self-directed efforts of the individual, who is his own best judge of which efforts he ought to undertake. Thus, natural rights were inalienable for Locke, because the individual himself was sacrosanct in the social world. At the same time, a theory of imprescriptible individual rights was necessarily intuitive. That is, there is no way to defend such an account except to affirm, as did Locke, that such rights are self-evident or, more strongly, inherently natural. This position, it should be noted, well served the in-

terests of an emerging commercial and industrial middle class in its struggle against an established landed gentry, since ideals promoted through this sort of rationalist argument would not be subject to debate nor negotiation. Indeed, in the seventeenth century in Britain, the ideals of Classical Liberalism were perceived as revolutionary by the landed status quo.

Classical political economy, however, did not proceed immediately from this more general context. In fact it was nearly one hundred years before Classical Liberalism produced a theory of the economy, as well as a theory of jurisprudence. By this time, moreover, Liberalism was as a whole changed in character, while its currents had multiplied. The continued progress of the commercial and industrial middle class since 1688 had permitted differences to appear between different elements of the middle class that had formerly been subsumed under common revolutionary purpose. Also, different issues were on the historical agenda by the end of the 1700s that reflected a century of increased political power and wealth.

Thus, generally, the questions at hand no longer concerned the formulation of a new program and conception of society, as had occupied Locke and others, but rather the practical implementation of this program, or

its institutionalization in the expanding precincts of middle class power. Liberal reform accordingly replaced revolutionary Liberalism, and Liberalism came to be concerned with the modernizing of administration, the improvement of legal procedure, the reorganization of the courts, the creation of sanitary codes and factory inspection, etc. This, then, was all a matter of the application of general principles for a Liberal society to specific problems.

It was no accident, therefore, that Adam Smith's (1723-1790) Wealth of Nations and Jeremy Bentham's (1748-1832) Fragment on Government both appeared at the end of the 1700s, indeed both in 1776, the former producing a conception and guide to those policies that would enhance the operation of an expanding market economy, and the latter providing the first explicit expression of the utilitarians' greatest happiness principle that justified specific legal, political, and institutional reforms. The rationalism or intuitionism of the revolutionary period, thus, came to be tempered and complemented by the more prosaic evaluation of practical matters, and Classical Liberalism evolved into the Liberalism that would characterize the social reforms throughout the nineteenth century. We might summarize this transition by describing those intellectuals with

whom Ricardo associated, known as the Philosophical Radicals, as hardly the revolutionaries of one hundred years earlier, but rather as reformers bent upon strengthening the new status quo that was developing with middle class power.

Given this, placing Ricardo's thinking in a more general framework involves determining the specific way in which he inherited his share of the understanding and responsibilities of nineteenth century Liberalism. On the surface this has seemed unproblematic to many. Two sources of Ricardo's intellectual heritage are readily identifiable, and these might seem to exhaust the theoretical foundations upon which Ricardo's political economy was established. On the one hand, there is the initial wave of the Scottish Enlightenment of Glasgow and Edinburgh that arose in the late 1700s.¹ Francis Hutcheson (1694-1746), David Hume (1711-1776), and Adam Smith form a succession of reasoning that produced both the early roots of utilitarianism and Smith's fundamental rationale for free trade. Clearly this was communicated to Ricardo through James Mill (1773-1836), another Scot, and his most influential companion. On the other hand, Bentham, again largely through Mill, brought one strain of the eighteenth century English Enlightenment to Ricardo's attention. Figures such as David Hartley

(1705-1757), with his associational psychology, influenced himself by John Gay (1685-1732), who early argued the connection of morality with private happiness, together with the most significant sensationalist of the French Enlightenment, Claude-Adrien Helvetius (1715-1771), who sought a thorough-going account of the derivation of all ideas from sense experience, were all significant in the development of Bentham's commanding expression of a psychological utilitarianism that came to dominate the middle class reform movement in its seemingly non-normative conception and practice. Indeed Mill, despite his Scottish origins, was more familiar with this latter tradition of the English Enlightenment, with its brief detour through Helvetius, than he was by Hume's empiricism, skepticism, and incipient utilitarianism.²

At the same time, Locke's rationalist formulation of the early foundations of Classical Liberalism was largely absent in these two traditions that came to operate on Ricardo. Hume only read Locke for his sensationalism or empiricism, and discarded what Locke had himself inherited from Descartes in an emphasis on the inner sense of reflection or intuition. Similarly, the other tradition of the English Enlightenment, distinct from but parallel in time to that which Bentham drew upon, namely, Cambridge Platonism, stemming from Ralph

Cudworth (1617-1688), master of Christ's College, Cambridge, and Locke himself, seemed altogether non-existent in the intellectual concerns of the Philosophical Radicals of Ricardo's time.

Locke, we might note, had early considered himself a Cartesian, and had actively participated in the critique of Aristotelianism in British universities, which became pervasive in the 1660s with the study of Descartes' deductive Platonism in philosophy, geometry, and optics. When by the 1690s Descartes himself was replaced as a text at Cambridge by the works of Newton and Locke, the ideal of deductive science had become standard. Thus, as Locke turned to the study of society, he set out to find the first principles of the moral sciences, from which specific political and ethical propositions would derived in a manner as certain as that involved in the study of physics or mathematics. Accordingly, on one occasion he comments:

I cannot but think morality as well as mathematics capable of demonstration if men would employ their understanding to think more about it and not give themselves up to the lazy traditional way of talking one after another.³

Similarly, in the well-known Essay Concerning Human Understanding Locke asserts:

I doubt not but from self-evident propositions, by necessary consequences, as incontestible as those in mathematics, the measures of rights and

wrong might be made out, to any one that will apply himself with the same indifference and attention to the one as he does to the other of these sciences.⁴

Indeed, thought Locke also gave rise to a tradition of empiricism and sensationalism, that is, in the other line of the English Enlightenment that led to Bentham, in social theory his reliance on those propositions the middle class regarded as indisputable and self-evident left this side of his thinking strictly rationalist.

By contrast, Hume, the premier figure of the Scottish Enlightenment, accepted the Aristotelian dictum that reason was the slave of the passions. Following Hutcheson he asserted that,

Morality is nothing in the abstract Nature of Things, but is entirely relative to the Sentiment or mental Taste of each particular Being Moral Perceptions therefore, ought not to be classed with the Operations of the Understanding, but with the Tastes or Sentiments.⁵

Further, the moral sciences are primary among all the sciences in Hume's estimation.

There is no question of importance, whose decision is not comprised in the science of man; and there is none, which can be decided with any certainty, before we become acquainted with that science. In pretending therefore to explain the principles of human nature, we in effect propose a complete system of the sciences, built on a foundation almost entirely new, and the only one upon which they can stand with any security.⁶

Hume, of course, was not only the great empiricist of the

eighteenth century, but was also the most prominent skeptic and philosophical critic. His principle of analysis of speculative ideas was to demand the sense impressions from which they must in his view be derived. In the case of moral sentiments, he demanded the passions from which they were derived. Smith and Bentham were both influenced by this form of reasoning, and through Mill they were the two major figures in Ricardo's intellectual environment.

Smith followed both Hutcheson and Hume in developing a morality of the sentiments or passions. Human nature was a psychological mechanism divinely designed so as to be capable of producing human happiness by an excess of pleasure over pain, and through which, moreover, one could discover the source of any moral sentiment in the human passions. In the Theory of Moral Sentiments Smith set out to examine the particular qualities of the various moral sentiments, a task that Hume had foregone. He concluded that there was no specific moral sense - nothing approaching the notion of a moral conscience - but that a Divine Plan operated in the affairs of society that insured that human happiness would be maximized by the interplay of human passions. Indeed, the moral sentiments that resulted, primarily, beneficence, justice, and prudence, for Smith "have no tendency to produce any but the most agreeable effects"⁷ upon individuals in

their self-interested interaction with one another. More generally Smith asserts,

Nature, when she formed man for society, endowed him with an original desire to please, and an original aversion to offend his brethren.⁸

In the Wealth of Nations, then, this deistic conviction in the essential harmony of society was translated into the framework of the market. The unseen hand harmonized the disparate needs and goals of individual economic actors and produced the greatest good possible as long as trade or exchange was unhindered.

Bentham's adoption of the empiricist conception of human nature provided the foundation for his psychological calculus of pleasure and pain with which proposals for social reform might be judged. He also strongly opposed, following Hume, any natural rights understanding of such programs, relying on what he believed to be a stronger standard, which was not laden with value assumptions, and depended upon the self-interested individual's enlightened response to reward and punishment. Moreover, the greatest happiness for the greatest number was something to be produced by legislation and reform, so that it could not be the case that the natural order with any system of natural rights possessed an intrinsic social advantage.

Let us now consider Ricardo's place in the intellec-

tual currents of this period. At the outset, however, we should note that while in fact Classical political economy was initially formulated by Smith in the context of much of the Liberalism we have just examined, it was not in its essential purpose - the defense of laissez faire - logically tied to any of these propositions. That is, though free trade might well be justified by the notion of an unseen hand in the market, the standard of the greatest good for the greatest number, etc., in fact these were only arguments that had been brought to bear in its defense. Thus, for an individual like Ricardo, who from his own practical experience must have long been convinced that commerce must be set free of protective tariffs, navigation laws, and various burdensome taxes, there was no necessity, upon turning to the elaboration of the principles of political economy, to put to use anything in particular in the immediate heritage of Liberalism. Moreover, for at least two reasons it can be argued that theoretical foundations other than those of Smith and Bentham were more appropriate to Ricardo's understanding of the economy.

First, Ricardo made very little use of either the notion of the unseen hand or the greatest happiness principle. Indeed in the first case, Ricardo argued in a

distinctly less than optimistic vein that should trade restrictions in the form of grain duties not be removed, profits would fall until a point was reached at which accumulation would be halted. The suggestion of stagnation, of course, hardly reflects Smith's promising forecast of harmony and prosperity. In the case of the utilitarian greatest happiness principle, moreover, although the freeing of trade from restriction might well improve the happiness of the middle class, it might also reduce the happiness of the landed class. Accordingly, if Ricardo was confronted with the alternatives of stagnation or free trade, use of either the unseen hand notion or the greatest happiness principle would be difficult at best. His general neglect of these conceptions, then, does not appear accidental.

Indeed, Ricardo's system is distinguished from that of many others by his perception that the expansion of the economy through capital accumulation and population growth might place significant numbers in society at a serious economic disadvantage. Should, for example, a fall in rents deprive landlords of much of their income, and also injure individuals dependent upon them, yet should such a development be in the interest of free trade, then social conflict would be intrinsic to the development of the economy. Similarly, if the introduc-

duction of labor-saving machinery is essential to the free development of trade, then again a defense of this involves a recognition that harmony does not always prevail in an unhindered market economy.

We might speculate, then, that whereas Smith was initially convinced on philosophical grounds that harmony between self-interested individuals trading in the market could be expected in a laissez faire regime, just as social peace could be found in all other spheres of human interaction, Ricardo, who approached political economy without being bound by a particular philosophical training with a specific set of preconceptions, was relatively free to examine the workings of the economy as they had appeared to him in his own experience in the market activities of London. Accordingly, though well acquainted certainly with the views of the Philosophical Radicals, Ricardo only insisted on the first premise that free trade was desirable. Smith, by contrast, deduced this proposition from his philosophical postulates, and so was really unable to perceive the full range of social conflict that was possible in the developing economy of the time.

In addition, it cannot be denied that by the time Ricardo turned to the study of political economy, the general understanding of the market system and the accum-

ulation process was considerably advanced beyond where Smith had left it decades earlier. On the one hand, the economy had gone through substantial changes on account of incipient industrialization, war, and inflation. On the other hand, the theoretical debate over particular policies appropriate to the problems these changes had created had become far more incisive than in Smith's time. For example, the bullion controversy contributions, the level of analysis in the Edinburgh Review, and the proliferation of studies of rent with the end of the Napoleonic wars all raised the standards of analysis above what they had been in Smith's heuristic Wealth of Nations. Altogether, then, political economists had to have been more impressed with the sheer intransigence of the theoretical difficulties they encountered, so that little time and space could be devoted to elaborating Smithian rationales if concrete, practical results were to be produced.

Indeed, it can be argued that, on an analytical level, Ricardo's real achievement in the original publication of the Principles was the critique of Smith's 'adding-up' concept of a commodity's value, since it was the abandonment of this proposition that enabled political economists to investigate trade-offs in distribution. At the same time, the 'adding-up' view fit

neatly with Smith's unseen hand assumption, so that in Ricardo's critique of this means of establishing the value of a commodity simultaneously one finds the implicit rejection of the notion that the economy operated harmoniously. That this conclusion concerning commodities' values came to Ricardo as a result of reflection on the very practical problem of determining the impact of rising corn prices on the prices of other commodities testifies to the level of political economy requisite at the time in terms of analytical rigor. On the whole, then, Smith's general views about the market economy lacked a place in the political economy that Ricardo addressed in the early 1800s.

There is a second reason for separating Ricardo's work from the traditions and concerns of his contemporaries. Though the principle that the greatest good for the greatest number could function as a justification for free trade, it could also function as a justification for the restraint of trade and for intervention in the economy. That is, the utilitarian principle was too pervasive in its potential application to require laissez faire alone, so that should one have made it a first premise of political economy, it would not be possible to guarantee what was in fact the first principle of political economy in Ricardo's view, namely, that free

was desirable. That the utilitarian principle did receive some support from political economists who generally were interested in free trade alone can be explained by the fact that free trade was for a time widely believed to be in the general interest. However, as soon as the public perception shifted to the conclusion that the greatest number would be most benefited by a restraint of individuals' market activity, the free trade political economist found utilitarianism an unwelcome theoretical resource. Thus, by the time of the last edition of the Principles, it could no longer be denied that involuntary unemployment resulted from the introduction of labor-saving machinery. The only defense, accordingly, of unhindered expulsion of labor from production on this account was that the free operation of the economy must be preserved at all costs.

Bentham's own views on property are of no small significance in this connection. On the one hand, Bentham had thought security of property a major condition for achieving the greatest happiness. On this ground, the unhindered use of one's property in the market could be justified. On the other hand, Bentham also believed that the law should aim at a comparatively equal distribution of property.⁹ This, however, suggests interference in the ways in which individuals can employ their

property. On the whole, then, the utilitarian was involved in balancing the motives of security and equality in the estimation of the greatest good for the greatest number. From a laissez faire point of view, this could well produce conclusions that were unwanted. Therefore, Ricardo's single-minded devotion to laissez faire made this share of the intellectual heritage of the Philosophical Radicals unwelcome as well.

How, then, are we to understand the theoretical foundations of Ricardo's principles of political economy? If these foundations are to be tailored to the unhesitating defense of laissez faire, and more specifically an unequivocal defense of profits and the property producing them, then it seems that what Ricardo required was the simple insistence that free trade had a self-evident value. Yet this suggests the rationalist intuitionism of Classical Liberalism and, in particular, the theory of natural rights as formulated most clearly by Locke. For Locke, individuals possessed a natural right to property; it preceded the establishment of government, and was employed as a principle by the middle class in the 1600s to disarm the landed class in its monopoly of political power. Ricardo, of course, was also highly concerned with the threat to profits and middle class property on the part of landlords who wished Britain's economy to

favor agriculture and rental income. In the Lockean tradition, then, he could find the elements of a defense of free trade that both avoided the theoretical traps of Philosophical Radicalism, and which provided a justification for laissez faire that was largely unshakable.

While Ricardo himself does not testify to his dependence upon this particular tradition of English reasoning, a case can be made that Lockean thought, which was certainly still part of the general Liberal understanding of society, impressed itself upon Ricardo's thinking in his efforts to conceptualize the principles of political economy. In addition to the two points above, which suggest a need on Ricardo's part to look elsewhere than in Philosophical Radicalism for the fundamental principles of system, two further features of his work indicate that this rationalist tradition was influential. First, there is Ricardo's deductive presentation of his thought. Secondly, there are the similarities between Locke's labor value view and Ricardo's theory. Let us consider the former briefly, and then proceed to the latter.

Ricardo's work has often been noted for its precise deductive presentation. Yet it should also be noted that this style of argument is not only distinct from that of many of Ricardo's contemporaries, but is

also premised upon the view that political economy can be reduced to definite principles which, if carefully set forth, permit the derivation of determinate conclusions. That is, Ricardo possesses the certainty in his reasoning of the rationalist, who, in the words of Locke, can make "morality as well as mathematics capable of demonstration" if only "the lazy traditional way" of thinking followed by most is given up. Ricardo, moreover, is not the Hume who saw all science ultimately dependent upon the record of sense impressions that particular, historical individuals experienced. Indeed for Ricardo, the principles of political economy have the status of natural laws which hold apart from individuals perception or recognition of them. They are to be discovered, and then set forth in their order from the most basic to those that follow. In the Principles, the former are those that explain the value of commodities, while the latter concern distribution. Let us, then, examine the a theoretical basis for Ricardo's first principles in Locke's own labor value view, since should the Lockean tradition have impressed itself upon Ricardo, we should find evidence of this in Locke's own formulations.

The similarity between Locke and Ricardo on the labor theory arises principally in connection with their common willingness to extend labor value analysis into

that later stage of society when land has been appropriated and stock accumulated. Smith, Ricardo's immediate predecessor in the labor value tradition argued that the theory was not applicable in later historical stages of society. He turned essentially to the 'adding-up' approach to commodity values, which was consonant with his philosophical outlook. Thus, that we find Ricardo, against Smith, extending the labor value analysis beyond the early state of society suggests that there were other sponsors of the view who not only maintained the theory appropriate to all times in history, but who also offered some additional rationale for doing so. Locke, it is here suggested, extended the labor value theory to all historical periods, because he associated the labor value of commodities with property in those commodities. That property was a natural right for Locke thus meant that one would always reason in terms of labor values. Further, that property was a natural right also meant that its employment was at the discretion of its owner, so that laissez faire received its foundation in individuals' natural rights. What are the details of this theory?

While Locke holds that "the great and chief end ... of Mens uniting into Commonwealths, and putting themselves under Government, is the Preservation of their

Property,"¹⁰ he also holds that men have a natural right to property, or a right prior to and independent of the existence of civil society and government. In fact, the natural right to property is almost indistinguishable from the natural right to life itself for Locke. In The Second Treatise of Government it is asserted:

By Property I must be understood here, as in other places, to mean that Property which Men have in their Persons as well as Goods.¹¹

Thus, we can see that since in Locke's labor value analysis labor is the source of value in individuals' property, and since property is tied to one's very person, it would make little sense to restrict such an analysis to an early state of society. More generally, we can recall our original characterization of the theoretical core of Locke's thought and Classical Liberalism, namely, that in general all value ultimately inheres in the satisfactions and realizations of the individual human personality. Value, it can now be said, is not just a quality of the commodity, but is, more importantly, the embodiment of the single person, the individual human being, in the material world. To the extent, thus, that individuals are taken as sacrosanct in the social world, so too must be their effects, property, and this can accordingly be characterized in terms of the value they work into such property by their labor.

Thus in The Second Treatise Locke shows the natural right to property to be derived from the natural right to one's life and labor. Since all men are naturally equal in the sense that no one has a natural jurisdiction over another, every individual has a natural right to life, liberty, and possessions.¹² At the same time, since the earth and its products were originally given to mankind in common, and since enjoyment of these requires their appropriation in a form conducive to their use, individuals have a natural right to property in what they remove from the earth's common stock through their own laboring activity.

However, there are two limitations to this right of appropriation of property. First, an individual may only appropriate as much as leaves "enough and good" for others to appropriate.¹³ This limit, Locke argues, is required on the ground that each person has a right to self-preservation and thus to the acquisition of the necessities of life. Most importantly, this limit applies to the appropriation of land, since land enables individuals to support themselves from their labor. Secondly, an individual may only appropriate that which may be used without spoilage.¹⁴ In this case which applies more to the produce of the earth, since land itself does not spoil, barter of surpluses is allowed as long as goods do not

go to waste.

The significance of these limitations for Locke rests with the conditions under which they may be transcended. Thus, as was surely evident, his theory of natural rights in life and property would have been of little plausibility if these limitations on property acquisition were absolute. On the other hand, to speak of the conditions under which these natural principles may be put aside is to make the right to actual property holding in the Classical Liberal conception a right that is dependent upon fulfilling specific conditions. Although in one breath Locke wants to make the right to property inalienable, in the next he wants require a specific use of property, as did the middle class which he represented. Accordingly, after asserting that by including vacant lands in America it could still be said at the time of the writing of The Second Treatise that there is enough land in the world for everyone, Locke adds:

But be this as it will, which I lay no stress on; This I dare boldly affirm, That the same Rule of Property, (viz.) that every Man should have as much as he could make use of, would hold still in the World, without straitning any body, since there is Land enough in the World to suffice double the Inhabitants had not the Invention of Money, and the tacit Agreement of Man to put a value on it, introduced (by Consent) larger possessions, and a Right to them¹⁵

That is, the natural law rule on the limitations to the appropriation of property is overturned by the introduction of money, by consent, in the interest of individuals in acquiring "larger possessions." In particular, where money is in use, unappropriated land no longer exists. What, then, is the explanation required of Locke on how the natural limitations to acquisition of property are transcended with the introduction of money?

The limitation associated with spoilage is no longer in effect, Locke simply argues, because gold and silver, the forms in which the produce of the earth may be accumulated when money exists, are not perishable. An individual thus may acquire "larger possessions" in this connection without transgressing natural law. We must note, then, that the position of the middle class is generally stronger when money is introduced. No serious conditions are placed on the acquisition of "larger possessions," and the opportunity for these improves the power and wealth of the class.

The limitation associated with leaving "enough and good" for others, Locke then argues, can be put aside if the cultivation of lands that would have been unappropriated produces a sufficient source of support for that part of the population that would have depended upon their appropriation for themselves. Thus:

he who appropriates land to himself by his labour, does not lessen but increase the common stock of mankind. For the provisions serving to the support of humane life, produced by one acre of inclosed and cultivated land, are (to speak much within compasse) ten times more, than those, which are yeilded by an acre of Land, of an equal richnesse, lying wast in common.¹⁶

That is, since such land under cultivation produces a yield that can support those without land, they need not actually cultivate it themselves if they somehow receive the benefits from it. Presumably, work for wages transfers the land's produce to those without ownership of land. This condition, however, is clearly a more difficult one to meet than the one associated with spoilage. Since land is taken by Locke to be the standard means of self-support for most individuals, landlords' acquisition of large tracts of land places the burden upon them to see to the support of those without land or wealth of other kinds. Indeed, if wages are insufficient outside of agriculture, implicitly the responsibility lies with landlords rather than the employers of the middle class. That is, it is not the responsibility of the manufacturer to pay a living wage, but simply a wage appropriate to his conditions of production.

Locke's theory, thus, begins with a defense of property in labor value terms, and moves to an implicit critique of the landed gentry. While we do not see Ricardo's

particular analysis of rents and profits in this account, we do find, as in Ricardo, a labor value view, conflict between classes, contention over responsibility for support of the laboring class, a critique of landlords, and most importantly a defense without reservation of property in accumulated stock. While Locke has often been characterized as a merchantilist on account of his emphasis on the accumulation of precious metals, at the same time it is possible to see a concern with the development of trade in some of his work. Thus, in Some Considerations of the Consequences of the Lowering of Interest and Raising the Value of Money of 1691 Locke suggests that gold and silver are accumulated not for themselves, but as a fund of capital with which to "drive trade."¹⁷ Hoarding was clearly inimical to this purpose, and The Second Treatise restriction on spoilage for those accumulating "larger possessions" in the form of stock or durable goods again suggests that Locke was in considerable degree concerned with the extension of trade.

Ricardo, then, would have found Locke, or the tradition of Locke, not too distant from his own concerns. Thus, if we are to emphasize the influence of this line of thought in the interpretation of Ricardo's work itself, it is important to place in the foreground the theoretical character of the conceptual foundations of

Classical Liberalism. In particular, since in the Lockean tradition natural rights are intrinsic to all forms and stages of society, and since they are in essence constitutive of natural laws which then govern society at all times and in all places, social relations on this view can never be said to change in their fundamental aspects, so that the laws of political economy must themselves be timeless and unchanging. On the one hand, then, this implies that the laws of political economy, once identified, are fully determinate in their abstract expression, and lack any open-endedness that would require supplementation with reference to historical fact or regularity. Indeed, reference to historical fact and particular circumstances can at best be illustrative of natural laws which are true and necessary in themselves. On the other hand, this formalist conception also implies that the principles or laws of political economy are unchanging through time. Once set forth, they are as appropriate to one historical period as another, and historical development of society and economy is non-existent in all but the most insignificant sense.

This rationalist or Platonist conception of a system of deductions that can be set out in a hierarchy of principles, it must be emphasized again, is closely tied to the epistemology of intuitionism. That is, if one's

basic principles are knowable apart from historical application and demonstration, then they can only be validated as knowledge by inner reflection and contemplation. In particular, if free trade is a first, indubitable principle of political economy, this postulate must stand apart from any evaluation by historical evidence. It must be self-evident, and held with the same conviction with which Locke insisted that certain rights are simply natural, irrespective of historical circumstance. Yet, though Ricardo never indicated any doubts about laissez faire, it seems difficult to believe he produced his entire analysis of the Principles without relying on his observation of historical practices and rules of custom. Was he, then, obligated to a methodology of investigation which he did not, and perhaps could not, practice, in order to explain the workings of the economy?

It is the premise of this dissertation that Ricardo was in this dilemma. While his goals were formalist, because of the appeal of this methodology in defense of free trade, Ricardo's actual investigation relied upon the understanding of specific, impermanent historical institutions and practices. At the same time, it cannot be said that the tensions imposed upon his work were apparent to Ricardo. He was not particularly concerned with the more philosophical aspects of his investigation,

and accordingly proceeded with a somewhat naive personal optimism about his own efforts, which appears ironic in comparison with the 'dismal' projections often attributed to him.

Thus, in the next chapter below, concerning the impact on the Principles of the addition of the "On Machinery" chapter to the third edition, we see that the system of political economy Ricardo originally sets forth is transformed by his admission that involuntary unemployment results from the replacement of labor by machinery. The social relations originally identified in the first two editions, then, cease to be the focus of the analysis that comes out of the changed Principles. Accordingly, the status of the natural laws underlying these new social relations is brought into question. While it may still be correct to say that these laws would obtain if historical circumstances were such as Ricardo originally believed, nonetheless, that changes in the economy have occurred by the time of publication of the third edition suggests that these laws are not representative of those principles explaining the economy's operation. Specifically, it may well still be a natural law that increased cultivation results in a declining labor productivity, yet should profits no longer be subject to the threat of rising wages when labor can be replaced by machinery,

then the principles that govern distribution must be sought in the relationship between employers and laborers, and these principles may lack a basis in natural law altogether. Generally, then, Ricardo's effort to model the economy on timeless natural law encounters difficulties related to changing historical circumstances, so that given his conviction that history did not modify the basic principles of political economy little success comes of his incorporation of the "On Machinery" chapter in the Principles.

In the chapter on profits that follows, a more detailed examination of the kinds of principles Ricardo employs in his distributional analysis is developed. On the one hand, the labor value logic of commodities' values is set forth with its emphasis on an objective, cost of production method of determination. Here we see the legacy of the Lockean tradition of natural value. On the other hand, to explain distribution Ricardo resorts to explication of the different historical and institutional factors involved in explaining the different levels at which the different income classes are rewarded. In the first two editions of the Principles, when it is the contest between the landlords and capitalists that is foremost, profit and rent can only be made sense of for Ricardo if the fact that rent is not paid on a cost of

production basis is emphasized. In the third edition of the Principles, when it is the contest between laborers and capitalists that is central, profit and wages can only be made sense of for Ricardo if it is emphasized that wages are not paid on a cost of production basis. As we will see on the whole, then, Ricardo requires elements of explanation for his distributional theory that cannot be identified without examining the specific, historical ways in which rents and wages were actually determined. Again, therefore, the formalist methodology is inappropriate to successful investigation of the principles of political economy, and to the extent that Ricardo failed to realize this, the complete accounting of his distributional theory must be accomplished by his interpreters.

The general conclusions that have been drawn here, it should be said, were anticipated by Piero Sraffa, the editor of Ricardo's complete works. Sraffa, from his study of Ricardo, concluded in his own Production of Commodities by Commodities that a full accounting for the principles that operate in the economy could not be established without reference to the particular, historical conditions that operate at any one time. Thus, the linear input-output model presented in Sraffa's own work lacks closure until the level at which wages are paid is specified. This implies that while some of

the structures of the economy can be described in naturalistic terms, namely, that particular commodities that are produced with certain other commodities must always employ those commodities in certain proportions, other components of the economy, namely, its distributional aspects, depend upon surveying the particular, historical practices and institutions at work in the determination of income shares. Specifically, the proportion in which wages share in the total value produced in an economy cannot be established as if it were a timeless parameter of a commodity economy. Wages, and thus profits, are socially and thereby historically determined.

These themes, then, dictate Sraffa's reading of Ricardo, which this dissertation in good part pursues. However, Sraffa did not devote much of his discussion of Ricardo to this more philosophical matter. His written contribution is, as all of his writing, concise and unamplified. Accordingly, demonstration of his philosophical convictions rests along another route. Indeed, Sraffa's philosophical convictions have played a highly notorious role in the history of twentieth century philosophy through Sraffa's own personal impact on the man generally regarded as the most important philosopher of this period, Ludwig Wittgenstein. Thus, by establishing the philosophical character of this relationship, we

may implicitly characterize Sraffa's own philosophical point of view.

Wittgenstein, first of all produced two philosophies, one early and one late, and it is the transition to the latter, and the rejection of the principles of the former, that attracts much of the contemporary philosophical interest in his work. The first philosophical system Wittgenstein developed, however, was formalist and Platonic. Commonly referred to as logical atomism, it amounted to an analysis of a formal or logical language made up of simple propositions which each corresponded to a fact about the world. The link between reality and thought depended upon there being atomic propositions which were said to picture atomic facts, so that complex statements about the world were a matter of representation of collections of facts. These complex statements, moreover, were arrived at by combination of simple propositions according to the rules of logic. Consequently, the structure of reality itself was indistinguishable from the structure of logic. Further, the only language that was significant was that which produced truth statements from logically well-ordered simple propositions picturing simple facts. Thus while individuals often utter sentences that appear meaningful, Wittgenstein concluded that they frequently do not say anything whatsoever.

While this account was intended to capture the essence of actual language, and thereby the essence of reality as well, it was soon argued by Wittgenstein's critics that this formal conception bore little resemblance to actual language. In fact, it was said, one could not begin to claim that formal or logical languages of this sort were the essence of everyday language, unless one first analyzed the patterns of meaning in the latter. In this case, however, the structure of reality that Wittgenstein had proposed was evident in the structure of logic would also be open to reinterpretation. Thus, the question of the nature of language dominated early twentieth century philosophical debates, just as had the question of knowledge dominated earlier debates over Kant and Hume.

Wittgenstein, however, came to reverse his position entirely in the early 1930s. He inaugurated what came later to be known as the philosophy of ordinary language, and produced at the end of his life the text of the Philosophical Investigations, his most famous and influential work. In it, in the words of G. J. Warnock:

He came to reject in particular three of the implications or assumptions of his earlier views - first, that language is essentially used for one purpose, the stating of facts; second, that sentences essentially get their meanings in one way, namely, through 'picturing'; and third, that any language essentially has, though it may be hard to see it, the clear and firm structure of the formulae in a logical calculus.¹⁸

More importantly for our purposes, this position was reversed when Wittgenstein returned to Cambridge shortly after Sraffa. We may cite Georg Henrik Von Wright's testimony to Sraffa's influence on Wittgenstein at this important juncture in the latter's work.

Of great importance in the origination of Wittgenstein's new ideas was the criticism to which his earlier views were subjected by two of his friends. One was Ramsey, whose premature death in 1930 was a heavy loss to contemporary thought. The other was Piero Sraffa, an Italian economist who had come to Cambridge shortly before Wittgenstein returned there. It was above all Sraffa's acute and forceful criticism that compelled Wittgenstein to abandon his earlier views and set out upon new roads. He said that his discussions with Sraffa made him feel like a tree from which all branches had been cut. That this tree could become green again was due to its own vitality. The later Wittgenstein did not receive an inspiration from outside like that which the earlier Wittgenstein got from Frege and Russell.¹⁹

From the preface to the Philosophical Investigations itself, we may note Wittgenstein's own testimony:

I was helped to realize these mistakes - to a degree which I myself am hardly able to estimate - by the criticism which my ideas encountered from Frank Ramsey, with whom I discussed them in innumerable conversations during the last two years of his life. Even more than to this - always certain and forcible - criticism I am indebted to that which a teacher of this university, Mr. P. Sraffa, for many years unceasingly practised on my thoughts. I am indebted to this stimulus for the most consequential ideas of this book.²⁰

Sraffa, thus, by all accounts has a key place in the origins of twentieth century philosophy as it is currently practiced. What precisely, then, was this influence?

We can get a suggestion of this influence from Norman Malcolm's description of an event that took place between Sraffa and Wittgenstein, and which was instrumental in precipitating the latter's abandonment of the logical atomist philosophy he had presented in his Tractatus Logico-Philosophicus.

Wittgenstein and P. Sraffa, a lecturer in economics at Cambridge, argued together a great deal over the ideas of the Tractatus. One day (they were riding, I think, on a train) when Wittgenstein was insisting that a proposition and that which it describes must have the same 'logical form', the same 'logical multiplicity', Sraffa made a gesture, familiar to Neapolitans as meaning something like disgust or contempt, of brushing the underneath of his chin with an outward sweep of the finger-tips of one hand. And he asked: 'What is the logical form of that?' Sraffa's example produced in Wittgenstein the feeling that there was an absurdity in the insistence that a proposition and what it describes must have the same 'form'. This broke the hold on him of the conception that a proposition must literally be a 'picture' of the reality it describes.²¹

Sraffa's example, in fact, conveyed to Wittgenstein that meaning is communicated by more than logical form. In particular, a meaning might depend upon the context in which it was created, and any sort of abstract proposition that might be employed to represent the general content of that particular meaning would, in virtue of its provision of the general sense meant, miss the very quality of emphasis involved in its actual expression. More generally, meaning was not independent of social context as the for-

malist Wittgenstein had believed in the Tractatus. Indeed, it was the context of an utterance which distinguished the meaning present in language, so that formal language was itself ultimately dependent upon ordinary language and its social environment.

Sraffa, therefore, criticized Wittgenstein for his formalist conviction that reality could be explained entirely apart from the evaluation of the changing circumstances of that reality. The world, this implied, could not be known or described completely prior to the identification of those features and relationships which were not true for all time and places. That is, historical development continually transformed society, so that the understanding of language or political economy depended in large part upon grasping what was changed and what unchanged as one moved from one situation to another.

Thus, although it would be difficult to say when it was that Sraffa reached these conclusions about explanation of social reality, it is clear that he had already developed them with some considerable degree of clarity when he began his work on Ricardo. The role of Ricardo in political economy and social theory, then, has in Sraffa's interpretation a significance beyond what is normally thought to be the case, since Sraffa re-introduces Ricardo without, in his own mind, any formalist

illusions. Sraffa, that is, makes Ricardo consistent in the latter's explanation of the market economy by allowing the full development of those historical elements present but undeveloped in the analysis of the Principles. He thus completes for Ricardo the Classical explanation of distribution and production as it culminated in the the thinking of its foremost representative in the early 1800s.

There is another aspect, however, to Sraffa's re-introduction of Ricardo to the study of political economy. Metaphorically, it can be described in terms of a circle of influence in history between philosophy and political economy. That is, while the rationalist philosopher of Classical Liberalism, John Locke, originally impressed upon David Ricardo, the preeminent Classical political economist, the lessons of formalism, these instructions were misguided; thus, when the modern Ricardo, Piero Sraffa, came to address the modern Locke, Ludwig Wittgenstein of the Tractatus, the failures of formalism became the lesson, and they were acknowledged. Political economy and philosophy, consequently, cannot be constructed Platonically in the realm of ideas alone.

Moreover, just as for the later Wittgenstein logical atomism required abandonment, so for Sraffa logical individualism of neo-Classical economics required aban-

donment. Specifically, on Sraffa's view, the formalist assumption of neo-Classicism that every economic explanation is one of constrained optimization on the part of individual economic agents had to be rejected, because this methodology would preclude the analysis of those historically specific economic relationships between individuals in which something other than or additional to individuals simply seeking their own best interest had occurred. Accordingly, Sraffa's presentation of his own version of the Classical program in the Production of Commodities by Means of Commodities is appropriately subtitled, Prelude to a Critique of Economic Theory, implying a critique of neo-Classical theory. Logical individualism, then, like its philosophical relative, attempted a determinacy of explanation which could not be achieved in social analysis. For Sraffa, Ricardo originally demonstrated the contradictions of formalism, yet the consequences of his efforts remained to be learned by political economists and social philosophers more than one hundred years after the last edition of the Principles.

In what follows, no explicit attempt to follow out the logic of the Sraffian neo-Ricardian critique will be made. It should be wondered, however, whether the particular theoretical combination of naturalism and his-

torical analysis that emerges in the Classical Ricardian system is ultimately a viable one. Indeed, it should also be wondered whether Sraffa's hinted-at critique can be carried out on the basis he proposes. Specifically, if one takes the structure of commodity production as given, as somehow natural, and only inquires of the historical forces involved in distribution, it seems that one accepts the notion that commodities have a value in virtue of the individual effort expended on their production. Distribution, then, however it may be seen to be historically determined, ultimately is constrained by the proposition that value arises from individual effort. This Classical natural rights principle, nonetheless, cannot justifiably be said to be a priori valid for all times and places. Indeed production can be carried out on other terms, and in fact has been, in other societies and times.

Putting these considerations aside, however, what were the initial difficulties Ricardo encountered in his investigation of the principles of political economy in formalist terms? Let us examine the impact of the added "On Machinery" chapter on the third edition of the Principles.

FOOTNOTES

1. For a discussion of the background on different traditions in the British Enlightenment, see John Herman Randall, The Career of Philosophy, (New York: Columbia University Press, 1962), Vol. I, pp. 711-14.

2. Ibid., p. 924.

3. Cited in Ibid., p. 718.

4. John Locke, An Essay Concerning Human Understanding, edited by A. D. Woozley, (Cleveland: Meridian Books, 1964), Book II, Chapter 3, Section 18.

5. David Hume, An Enquiry Concerning Human Understanding, edited by C. W. Hendel, (Indianapolis: Bobbs-Merrill, 1955), p. 23n.

6. David Hume, A Treatise of Human Nature, edited by L. A. Selby-Bigge, (Oxford: at the Clarendon Press, 1888), p. xx.

7. Adam Smith, The Theory of Moral Sentiments, 6th edition, 1790, (New York, 1966), p. 237.

8. Ibid., p. 55.

9. George Sabine, A History of Political Theory, Third edition, (New York: Holt, Rinehart and Winston, 1961), pp. 681-2.

10. John Locke, The Second Treatise of Government, edited by T. P. Peardon, (Indianapolis: Bobbs-Merrill, 1952), Section 124.

11. Ibid., Section 173.

12. Ibid., Section 4.

13. Ibid., Section 27.

14. Ibid., Section 31.

15. Ibid., Section 36.

16. Ibid., Section 37.

17. John Locke, The Works of John Locke, 10 Volumes, (London: Thomas Tegg, 1823), Vol. 5, p. 21.

18. G. J. Warnock, English Philosophy Since 1900, (London: Oxford University Press, 1958), p. 44.

19. George Henrik Von Wright, "Biographical Sketch," in Ludwig Wittgenstein, A Memoir, edited by N. Malcolm, (London: Oxford University, 1958), pp. 15-16.

20. Ludwig Wittgenstein, Philosophical Investigations, translated by G. E. M. Anscombe, Third edition, (New York: The Macmillan Company, 1958), p x.

21. Norman Malcolm, Ludwig Wittgenstein, op. cit., p. 69.

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