Chapter Three

MARX'S METHOD

I. The Method of Capital

Marx's work, so rich in criticism of the method and content of philosophical and economic thought up to his day, lacks a systematic presentation of his own dialectical method. Only the brief and unfinished Introduction to his A Contribution to the Critique of Political Economy, which Marx prepared in 1857, but which was not published until 1903, in Die Neue Zeit, gives an explicit account of his analytic method in political economy. On dialectics per se he never wrote a systematic treatise, although he once expressed an intention to do so.[1] The dialectic method in political economy can be deduced only from examining its product.[2]

A. The Change in the Plan of Capital

The structure of Marx's economic work as it finally took shape in Capital and Theorien uber den Mehrwert[3] provides the clue

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1. Letter 36, Marx to Engels, January 14, 1858, Correspondence of Marx and Engels, 102.

2. All discussions on Marxian method are heavily indebted to the first serious examination of the plan of Capital, made by Henryk Grossman in "Die Anderung des Aufbauplans des Marxschen Kapital und ihre Ursachen," Archiv fur die Geschichte des Sozialismus und der Arbeiterbewegung, Vierzehnter Jahrgang, Heft 2 (1929), 305-338. Since our discussion closely follows Grossman's article, specific references are omitted.

3. Only the first volume of Capital was prepared for the press by Marx himself. The last two volumes were edited by Engels and published in 1885 and 1894, respectively. The manuscripts dealing with

to his method.   This structure represents a change from that originally planned, a change dictated not by convenience of exposition, as alleged by Kautsky, Mehring and others, but by the logic of Marx's own method.

The initial plan of Marx's work appears in the <u>Critique of Political Economy</u> which itself was to be the first part of his complete theoretical system.   Here he gives the plan of his entire work (previously outlined in a letter to Engels),[4]   "I consider the system of bourgeois economy in the following order: <u>Capital</u>, landed property, wage labor, state, foreign trade, world market."[5]   The first book, dealing with capital, was to be subdivided into these four sections: 1) capital in general; 2) competition; 3) credit; 4) incorporated capital.[6]   Section 1, capital in general, was to be divided into the following three chapters: 1) commodity; 2) money, or simple circulation; 3) capital in general.   The <u>Critique</u> covers the first two chapters on commodity and money of this first section.[7]

the history of economic thought were published in three volumes by Kautsky between 1904 and 1910 as <u>Theorien uber den Mehrwert</u>.
    Contrary to the opinion of those who find a "contradiction" between Volumes I and III of <u>Capital</u>, a contradiction attributed to the allegedly long interval which separated the composition of these two volumes, a first draft of the entire work was virtually completed at the time the first volume was published.   The general system of Marx's thought appeared as early as 1847 in the <u>Poverty of Philosophy</u>.   That Marx's analysis was fully worked out very early is clear from his letter to Engels in 1868 which outlines the precise plan of the third volume.   (Letter 108, Marx to Engels, April 30, 1868, <u>Correspondence</u>, 240-246.)

4. Letter 38, Marx to Engels, April 2, 1858, <u>Correspondence</u>, 105.

5. Author's Preface to the <u>Critique of Political Economy</u>, 9.

6. Letter 38, Marx to Engels, April 2, 1858, <u>Correspondence</u>, 105.

7. Author's Preface to the <u>Critique</u>, 9.

Marx continued to work according to the above plan until 1863, when, in a letter to Engels, he complains, "When I look at this compilation now and see how I have had to turn everything around. . . ."[8]   The evidence that Marx was turning everything around appears in a letter of the previous month in which he discusses his reformulation of Quesnay's _Tableau_ in the terms of his own system.[9]   It is clear that the new plan approaches processes of production, circulation, and the process of production as a whole, that appear later in the reproduction schemata.   The final plan of the work first appears in a letter of Marx where he writes, in 1866: "The whole book is divided as follows:

> Book I   The Production Process of Capital
> Book II   Circulation Process of Capital
> Book III Forms of the Process as a Whole
> Book IV   Contribution to the History of the
>   Economic Theory."[10]

The two plans are strikingly different.   The first plan is more descriptive, and closer to reality; the second is much more general and abstract.   The first uses the economic categories traditional to political economy.   It divides economic analysis according to the special fields of economic activity and concrete experience.   The second considers the economy in terms of the processes of production, circulation, and production as a whole, within which processes the special topics are subsumed.   The second plan is more fruitful because, since the production of surplus

8. Letter 69, Marx to Engels, August 15, 1863, _Correspondence_, 157.

9. Letter 67, Marx to Engels, July 6, 1863, _Correspondence_, 153-6.

10. Letter 92, Marx to Kugelmann, October 13, 1866, _Correspondence_, 215.

value or the self-expansion of capital is the goal of the capitalist economy, the main purpose in the theoretical system is to explain the difference between a given capital and its expanded value. This can be done most easily when the analysis takes the form of a reproduction schema.

The reasons for the change of plan emerge, first, from an examination of the methodological observations in the Introduction to the Critique, which Marx did not publish with the Critique because "any anticipation of results that are still to be proven seemed 'objectionable'";[11] and, second, from an examination of the structure of Capital itself.

B. The Method of Successive Approximation

Marx's method is appropriately called one of successive approximation.[12] The analysis starts on the highest level of abstraction with general laws, deduced from concrete experience. It then successively approaches reality through a series of increasingly less abstract generalizations, which modify the general laws, and by concrete description.

Marx follows the classical tradition in starting on a high level of abstraction. "In the analysis of economic forms," he says, "neither microscopes nor chemical reagents are of use. The

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11. Author's Preface to Critique of Political Economy, 9.

12. Cf. Henryk Grossmann, Das Akkumulations-und Zusammenbruchsgesetz des kapitalistischen Systems (Leipzig, 1929), Einleitung, vi-viii, and "Die Wert-Preis Transformation bei Marx und das Krisenproblem," Zeitschrift für Sozialforschung, Jahrgang I, Doppelheft 1-2 (1932), 57-61.

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force of abstraction must replace both." However, with his method

of successive approximation, Marx departs from classical tradition.

The classical theorists remain on a high level of abstraction with

their general laws, which the facts of reality force them repeatedly

to contradict. In Marx, the facts of reality illustrate and modi-

fy, but do not contradict the general laws. Only in the theoreti-

cal development from abstract to concrete, through a series of suc-

cessive approximations, can the concrete facts of reality be related

to and explained by the general laws.

This dialectical development is one of thought, not of

reality. Reality is always concrete, yet it can be grasped in

thought only by proceeding from generalization to description, from

the abstract to the concrete. Marx illustrates this principle in

his discussion on method in political economy.

When we consider a given country from a politico-
economic standpoint, we begin with its population, then analyze the
latter according to its subdivision into classes, location in city,
country, or by the sea, occupation in different branches of produc-
tion; then we study its exports and imports, annual production and
consumption, prices of commodities, etc. It seems to be the cor-
rect procedure to commence with population which is the basis and
the author of the entire productive activity of society. Yet, on
closer consideration it proves to be wrong. Population is an
abstraction, if we leave out, e. g., the classes of which it con-
sists. These classes, again, are but an empty word, unless we
know what are the elements of which they are based, such as wage-
labor, capital, etc. These imply, in their turn, exchange,
division of labor, prices, etc. Capital, e. g., does not mean
anything without wage-labor, value, money, price, etc., If we
start out, therefore, with population, we do so with a chaotic con-
ception of the whole, and by closer analysis we will gradually ar-
rive at simpler ideas; thus we shall proceed from the imaginary
concrete to less and less complex abstractions, until we get at
the simplest conception. This once attained, we might start on
our return journey until we would finally come back to population,
but this time not as a chaotic notion of an integral whole, but as

13. Preface to the first edition, Capital, I, 12.

a rich aggregate of many conceptions and relations. The former method is the one which political economy had adopted in the past at its inception. The economists of the seventeenth century, e. g., always started out with the living aggregate; population, nation, state, several states, etc., but in the end they invariably arrived, by means of analysis, at certain leading abstract general principles, such as division of labor, money, value, etc. As soon as these separate elements had been more or less established by abstract reasoning, there arose the systems of political economy which start from simple conceptions, such as labor, division of labor, demand, exchange value, and conclude with state, international exchange and world market. The latter is manifestly the scientifically correct method. The concrete is concrete, because it is a combination of many objects with different destinations, i. e., a unity of diverse elements. In our thought, it therefore appears as a process of synthesis, as a result, and not as a starting point, although it is the real starting point, and, therefore, also the starting point of observation and conception. By the former method the complete conception passes into an abstract definition; by the latter, the abstract definitions lead to the reproduction of the concrete subject in the course of reasoning. Hegel fell into the error, therefore, of considering the real as the result of self-coordinating, self-absorbed, and spontaneously operating thought, while the method of advancing from the abstract to the concrete is but a way of thinking by which the concrete is grasped and is reproduced in our minds as concrete. It is by no means, however, the process which itself generates the concrete.[14]

The structure of _Capital_ itself illustrates Marx's method of successive approximation. The first volume is the most general and the most abstract. Its subject matter is "the process of capitalist production, considered by itself as a mere productive process without regard to any secondary influence of conditions outside it."[15] The descriptive and historical data merely illustrate the general laws. This volume deals with capitalism in its pure state, as a closed economy of two classes, whose relations alone determine the production process.[16] The assumptions of this volume

14. Introduction to the _Critique_, 292-4.

15. _Capital_, III, 37.

16. Marx says that "the relation between wage labor and capital determines the entire character of the mode of production. The

are all simple and provisional, e. g., that prices equal values, that
the rate of surplus value and the organic composition of capital are
everywhere equal, that credit, competition, and other forms of capi-
tal besides industrial capital do not exist. The conclusions of
this first volume are, of course, merely provisional. The second
volume, which is also based on these simple, provisional assumptions,
deals with the process of circulation, analyzing the "life circle
of capital,"[17] and is, therefore, less abstract than the first.
The third volume brings the analysis closer to concrete reality, as
the provisional assumptions and conclusions of the first two volumes
are modified and supplemented. Competition, price deviations,
credit, the different forms of capital and of surplus value, and
their mutual relations, are successively brought into the analysis.
"The conformations of the capitals evolved in the third volume ap-
proach step by step that form which they assume on the surface of
society, in their mutual interactions, in competition, and in the
ordinary consciousness of the human agencies in this process."[18]

The structure of Capital reveals also the role of dialec-
tics in Marxian analysis. The work itself is a dialectical whole,
yet the dialectical method, most apparent in the first, and most

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principle agents of this mode of production itself, the capitalist
and the wage worker, are to that extent merely personifications
of capital and wage labor. They are definite social characters,
assigned to individuals by the process of social production. They
are products of these definite social conditions of production."
(Ibid., III, 1025.)

17. Ibid., III, 37.

18. Ibid., III, 38.

abstract chapter of Volume I, "Commodities", appears increasingly
less evident in the process of successive approximation from
abstract to concrete. The dialectical method is used for the
most abstract exposition, for qualitative analysis, while a more
mathematical method is introduced to deal with the quantitative
developments of Volumes II and III. A valuable insight into
Marx's method is provided by what one writer calls the "comple-
mentarity of dialectics and mathematics, paralleling the opposi-
tion between quality and quantity."[19]

C. The Meaning of Marx's Abstractions.

Marx is often charged with the formulation of economic
laws which, because they are not immediately applicable to concrete
experience, are held to be invalid. The theory of relativity could
similarly be held invalid because we cannot see the fourth dimension.
The role of science, whether economic or physical, however, is not
to describe reality, but to explain the general laws which dominate
this reality. Further, it must show the way in which those general
laws are modified in concrete experience. The theoretical analysis
must begin with a few fundamental abstractions. The task is to
choose those abstractions which generalize the essential relations
of the system and explain the multiform expressions of these rela-
tions.

19. Alex Barbon, "La Dialectique du Capital," Revue Internationale,
No. 8, September 1946, 136. This article, the first part of which
simply restates the Grossmann discussion on method, contains, in
addition, an excellent analysis on the nature of Marx's categories,
and the role of dialectics in the Marxian structure, which is fol-
lowed here.

In political economy this means choosing those categories which express the fundamental relations of the capitalist economy. As Marx frequently notes, the economic categories of "vulgar economy, which deals with appearances only,"[20] are derived from surface phenomena and are unable to explain the underlying relations of production. His own categories are derived from these fundamental relations in their pure form. Marx assumes "the general and exclusive rule of the capitalist form of production."[21] The fundamental abstraction of his analysis of this "pure" capitalism is the capital-labor relation. As the condition for the production of value and surplus value, this relation forms the basis of the capitalist economy. But the purely theoretical relation of analysis, although deduced from reality, is not intended as a mere description of reality. It is rather elevated to the level of abstraction from which is derived the essential logic of the system.

Similarly, the abstraction of surplus value in general, which is linked to the capital-labor relation, is the basis on which the categories of industrial profit, commercial profit, interest and ground rent are deduced. Only after developing the general laws of surplus value, which alone reveal the origin and nature of this surplus, does Marx deal with the particular forms taken by the general form of surplus value.[22]

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20. *Ibid.*, I, note 93.

21. *Ibid.*, I,

22. Marx notes that his "treatment of surplus value independent of its particular forms," and the "double character of labor" are the best points in his book (Volume I of *Capital*). (Letter 99, Marx to Engles, August 24, 1867, *Correspondence*, 226-7.)

If Marx's categories are not descriptive, neither are they ideological or historical (as in Hegel); they are essentially logical.[23] In his discussion of these categories, Marx asks, "But do not these simple categories also have an independent historical or natural existence antedating the more concrete ones?" The answer is, "Ca depend."[24]

In some cases the logical development of the theoretical categories from abstract to concrete, from simple to complex, parallels historical development. Money, for example, precedes capital in historical as well as in logical development. But, "although the simple category may have existed historically before the more concrete one, it can attain its complete development only in complex forms of society. . . ."[25]

On the other hand, the logical development of other categories is directly opposite to that of its historical development. Marx points out that "the most general abstractions commonly arise only where there is the highest concrete development. . . ."[26] For example, industrial capital, the dominating form in capitalist production, succeeds commercial and interest-bearing capital historically, yet in logical analysis it forms the starting point.[27]

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23. Barbon, loc. cit., 134.

24. Introduction to the Critique, 295.

25. Ibid., 297.

26. Ibid., 298-9.

27. Marx deals with this point extensively in Capital, III, chap. 20 ("Historical Data concerning Merchants' Capital"), 380-96.

Similarly, the simple category of abstract labor, which is the starting point in the logical analysis of the capitalist form of production, is historically the most recent form. Marx illustrates this point with reference to the United States. "It is only here that the abstraction of the category, 'labor', 'labor in general,' labor sans phrase, the starting point of modern political economy, becomes realized in practice."[28]

Moreover, simple categories of the most complex form of society, i. e., capitalism, can be used in the examination of past forms. ("The anatomy of the human being is the key to the anatomy of the ape.")[29]

In summary Marx says:

> It would thus be impractical and wrong to arrange the economic categories in the order in which they were the determining factors in history. Their order of sequence is rather determined by the relation which they bear to one another in modern bourgeois society, and which is the exact opposite of what seems to be their natural development. What we are interested in is not the place which economic relations occupy in the historical succession of different forms of society. Still less are we interested in the order of their succession "in idea" (Proudhon), which is but a hazy conception of the course of history. We are interested in their organic connection within modern bourgeois society.[30]

II. Successive Approximation and Equilibrium Analysis

One of the strongest criticisms of Marxian theory is that it fails to furnish a determinate equilibrium of the system. More specifically it is argued that since in the transformation from

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28. Introduction to the Critique, 299.

29. Ibid., 300.

30. Ibid., 304.

values to prices of production the equilibrium conditions, i. e.,
that price equals value and that the average rate of profit prevails,
are mutually contradictory, the labor theory of value, apart from
whether or not it holds in reality, is theoretically untenable,
However, since the Marxian system includes various levels of value
and price forms, equilibrium analysis is useful only if applied suc-
cessively to these various stages of successive approximation.

Successive approximation from abstract to concrete appears
in all classical analysis which makes the distinction between value
and price, or between natural price and market price. Equilibrium
prevails where competition eliminates deviations and enforces equality
of natural and market prices.[31] However, the classical writers
are unable to deal with apparent exceptions to the law of value;
since it appears that in some cases the market price cannot conform
to their theoretically determined value, or natural price, they ex-
plain away the deviation by altering the law of value. In this way
the natural price is redefined to fit the market price. Thus Smith
postulates the quantity of labor embodied in a commodity to be the
determinant of its value, but then abandons this law when he steps
from the deer beaver society into the capitalist world. Since actual
prices diverge from the theoretical values, these prices are then
postulated as the true values and the component parts of prices

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31. The problem of value-price equilibrium does not appear in the
cost-of-production or marginal utility theories of value. In the
former case, value is determined by cost-prices. In the latter
case, value is determined by subjective valuations expressed in
price. There can be no problem of value-price equilibrium when
price and value are identically equal.

(whose sum Smith exaggerates because he neglects to account for the constant capital which must be reproduced) are admitted as sources of value.

Similarly, Ricardo argues from value to price, and sets as equilibrium conditions that market prices equal natural prices and that the rate of profit be everywhere equal. However, those two conditions are contradictory if natural price means labor value. Ricardo's natural price must be a price of production which deviates from value. Here again the equilibrium conditions are satisfied only by a new definition of natural price. Moreover, in implying that abstinence is a source of value, Ricardo is driven half way back to Smith's theory of value based on the component parts of price.

In the Marxian system, no one set of equilibrium conditions can be applied to the whole system. This is true for two reasons: 1) equilibrium theory presupposes the determinateness of _stable_ equilibrium, which under Marxian assumptions is impossible; 2) the transformation of value to market prices is not immediate but successive; each stage of the transformation requires its own equilibrium conditions.

Any theory of value is an equilibrium theory in the sense that it establishes a set of equilibrium values or prices to which actual prices tend, or around which they fluctuate. In this sense, the labor theory of value can be called an equilibrium theory. However, the concept of static equilibrium in its most usual meaning cannot be applied to the Marxian system. The concept of static

equilibrium, as strictly defined, implies a uniquely determined and stable equilibrium. The data of equilibrium theory are so framed as to exclude the possibility of endogenous change. Deviations from equilibrium, due to the influence of competition, by the same influence tend to be eliminated.

A. Value Equilibrium

In no case can static equilibrium analysis be applied to the Marxian system, where the data themselves supply the conditions of change. Yet equilibrium analysis can be applied to the Marxian system in a series of steps, starting as a first approximation with equilibrium analysis of the value form. Within this form there are two processes whose equilibrium conditions can be given: (1) simple reproduction, and (2) expanded reproduction, or accumulation.

1. Simple Reproduction. Marx holds that the case of simple reproduction (a stationary process similar to that of Quesnay's Tableau and Professor Schumpeter's circular flow) is "irreconcilable with capitalist production."[32] Although prices equal values at any moment, dynamic rather than static equilibrium analysis is more fruitful, since the condition of equilibrium between Department I (means of production) and Department II (means of consumption), $IIC = I(V + S)$, applies to a period of time.[33] The equilibrium

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32. Capital, II, 608. The theoretical difficulties which appear in accumulation first appear in simple reproduction. Marx's discussion of the latter case is much longer and more detailed than that of the former. Cf. Chapter XX, "Simple Reproduction," 455-570.

33. Equilibrium is static if the time unit is taken to be one year, as in Marx' examples. However, since simple reproduction is a process, it is more useful to view the variables of the equilibrium dynamically as time-rates.

conditions which lie behind this general condition are the following:

a) annual reproduction of the constant capital of

Department I which does not enter the market

b) equality between the fund accumulated for replace-

ment of the fixed capital of both departments, and

the actual depreciation

c) total consumption of all revenues (minus replace-

ment)

d) equilibrium production in Department II between

workers' consumption goods and capitalists' consump-

tion goods

e) constant organic composition of capital (the same

in each Department) and, therefore, constant

productivity in terms of use values

f) annual replacement of the worn-out money supply
g) constant rate of surplus value

Simple reproduction, however, while a logical possibility

and methodologically important as the theoretical basis for the analy-

sis of accumulation, is economically impossible in the capitalist

economy, which is characteristically an accumulating economy.

2. Accumulation. Similarly, as a first approximation

equilibrium analysis can be applied also to accumulation. The ac-

cumulation models of Volume II of _Capital_ assume that price equals

value and that accumulation maintains the correct proportions between

the two Departments.[54] Here II C $<$ I(V $+$ S), since part of IS must

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54. The exact proportions depend on the rate of accumulation of the
surplus value. This rate may vary of course, but to make the ex-
position simpler Marx assumes it remains constant. If it equals K,
then the equilibrium condition is that II (C $+$ KS) $=$ I(V $+$ (1-K)S).

serve for accumulation. Marx assumes the initiative to accumulation is taken by Department I, while Department II progressively adapts to scale. The reverse assumption is equally possible, although, logically, Department I might be expected to take the initiating role. All the subsidiary conditions of equilibrium in simple reproduction except f) (no saving) still hold.[35] In addition, there is the new equilibrium condition that the money capital saved equals the productive capital invested.[36]

As the first stage of successive approximation, the value system is the most abstract and the most provisional. Throughout Volumes I and II, Marx sets the simple equilibrium condition that all commodities exchange at their values. This is only a first approximation necessary to demonstrate the law of value, the determination of value by labor-time. This condition implies that the organic composition of capital, and hence the rate of profit, are everywhere equal. Marx repeatedly asserts that the assumption of exchange according to labor values is not a description of reality, but is merely a theoretical first approximation.[37]

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35. In order that exchange take place at _values_, the composition of capital must be the same in the two departments. This is not the case in all of Marx's examples, nor does Marx deal with this problem in his discussion of accumulation in Volume II (571-611). Similarly, he does not deal with accumulation on the basis of a rising organic composition of capital, or rising productivity in use values. For equilibrium to prevail the composition of capital must rise equally between the two departments. The relation of the organic composition to exchange at values will be dealt with in the following pages.

36. _Capital_, II, 575-7.

37. For example, in _Capital_, I, 178; _Theorien uber den Mehrwert_, II (1), 191; _ibid_., III, 92.

B. Price of Production Equilibrium

The second stage of successive approximation establishes the price form known as the price of production. At this stage of the analysis, the equilibrium condition is that all capitals yield an equal rate of profit. [38] In Volume III of Capital, Marx drops the provisional assumption that the organic composition of capital is everywhere equal. In reality, differences in the technical requirements of different industries leads to large variations in the organic composition, and, therefore, in individual rates of profit. The equilibrium condition is that, regardless of the composition of an individual capital, and of its own rate of profit, each capital receives a share in the total social surplus value proportional to its aliquot share in the total capital. Thus, through competition, equal capitals realize equal profits in equal times. [39]

The average rate of profit is achieved by the mobility of capital. [40] Yet all capital does not leave the industries of high organic composition of capital to enter those of low composition, because, 1) there are always short-run gains to be made in the more productive high composition industries, where the rate of profit may

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38. This average rate of profit is, of course, a weighted average of the average rates of different industries.

39. Here, as everywhere, we assume for simplicity an equal period of turnover for all capital.

40. Strictly speaking, it is the marginal rate of profit which determines the mobility of capital. However, in the Marxian system, since only one factor of production produces profit, marginal and average rates are the same.

be temporarily higher; and 2) the mobility of capital tends to equalize the different organic compositions, so that the tendency to equalization of the different profit rates itself arrests the mobility of capital.   Thus, the average rate of profit is both a result of, and a deterrent to, mobility of capital.   The historical tendency is to greater investment in the high composition industries.

With the establishment of the average rate of profit, commodities can no longer sell at their values.   The price of each commodity is made up of its cost-price (constant plus variable capital) and the average rate of profit.   The resulting price, the price of production, deviates above, below, or is equal to its value, depending on whether the organic composition is above, below, or equal to the average.[41]

"By the transformation of values into prices of production, the basis of the determination of value is itself removed from direct observation."[42]   Yet the law of value continues to operate behind the prices of production, insofar as 1) the prices of production, like values, are altered, with changes in the labor time "socially necessary" to produce a given commodity, and 2) the total profit equals the total surplus value.[43]

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41. Capital, III, 193.

42. Ibid., III, 198.

43. The average rate of profit "is merely a different way of dividing the surplus value, when a commodity is sold above or below its value, and. . .this different division, this change of proportions in which different persons share in the surplus value, does not alter in the least the magnitude or the nature of the value" (Ibid., III, 56).

In the transformation of values into prices of production, the prices deviate from values for two reasons: 1) The individual rates of profit are transformed into an average rate and the cost prices which include this new average rate of profit are, themselves prices of production which deviate from values. 2) The average rate of profit is lowered by the fact that prices of production, unlike values, (which are considered on the provisional assumption that all capital is industrial capital) are considered with reference to all forms of capital, and must account for the division of total surplus value into industrial profits, commercial profits, financial profits, interest and ground rent. In the preliminary analysis of the average rate of profit, this rate appears to be an average of the total industrially produced surplus value. But this total must be shared with forms of capital which themselves do not produce surplus value.

The division of a given magnitude of surplus value into different forms of profit is competitively determined. In equilibrium, the financial, commercial, and industrial profits tend to equality at the average rate of profit.[44] The money rate of interest, however, has no "natural" level.[45] Its average is determined by the average rate of profit, from which it is a deduction, and which forms its maximum limit. The market rate of interest

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44. Capital, III, 397.

45. Like most economists, Marx uses the expression "rate of interest" to signify a structure of rates which generally move together. Ibid., III, 429.

(which fluctuates in the business cycle inversely to the average rate of industrial profit) is simply determined by the demand and supply of money capital.[46]   Ground rent, like commercial profits and interest, is a deduction from the average rate of profit.   The average of rate of profit is lowered in this case just because it does not apply to agriculture.   The monopoly in land ownership makes it possible for agricultural commodities to be sold at their values (at the margin), rather than at their prices of production, which prices would be lower than values because the organic composition of capital in agriculture is generally lower than the average.[47]

Marx speaks of the average rate of profit as the "compelling power" of capitalist production.[48]   Deviations from the average rate of profit, "aside from unessential, accidental, and mutually compensating distinctions, . . . could not exist without abolishing the entire system of capitalist production."[49]   This average is, of course, an "ideal average which does not really exist," yet there is always a tendency toward it.[50]

The equilibrium condition of this second stage of transformation, from values to prices of production, obviously conflicts

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46. Ibid., III, 421-9.

47. Ibid., III, 896-7.

48. Ibid., III, 304.

49. Ibid., III, 181.

50. Ibid., III, 204.

with the first.   Theoretically, the contradiction can be solved
and the two conditions, 1) value equals price, and 2) the establish-
ment of the average rate of profit, be made compatible.

     1. <u>Equalization of the Organic Composition of Capital</u>.   The
first method of eliminating this contradiction is to assume a tendency
to equalization of the organic composition of different capitals,
so that average profit and individual profit tend to coincide.

     a) An everywhere equal organic composition of capital
may be postulated theoretically as a special case.

     b) It may be postulated as an historical tendency,
insofar as, with increasing productivity the composition of more
backward industries tends to rise faster than that of the more advanced industries.   In this connection, Marx notes an historical
tendency toward equalization of the differences in productivity be-
tween agriculture and industry.

     c) It may be postulated as a logical result of tech-
nological change, through which the <u>value composition</u> rises less
rapidly than the <u>technical composition</u> of capital.   A rising tech-
nical composition of capital cheapens all the elements of capital.
But, since the elements of constant capital are cheapened more

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61. This contradiction is the basis of the most^(the) criticism of the
labor theory of value as developed by Marx.   The argument first
appears in Bohm Bawerk, who simply states that, "The theory of the
average rate of profit and of the prices of production cannot be
reconciled with the theory of value" (Eugen v. Bohm Bawerk, <u>Karl
Marx and the Close of his System</u>, London, 1898, 64);

52. <u>Theorien uber den Mehrwert</u>, II (1), 280.

rapidly than labor power (means of production being produced on a higher technical level than subsistence goods), the differences in the technical composition of capital of different industries are expressed in increasingly smaller differences in the value composition. As Marx points out, equal value composition may co-exist with unequal technical composition and vice versa.[53] In general, the value composition tends to be equalized over time more quickly than the technical composition.

If the equalization of the organic composition is an historical or logical tendency, the contradiction between the two equilibrium conditions, that 1) prices equal values, and 2) the average rate of profit prevails, tends to disappear.

2. The Transformation of Values into Prices of Production. The second method of establishing consistency between the two equilibrium conditions is the now famous method of value-price transformation. The theory behind the transformation starts from the assumption that the labor theory of value falls unless equilibrium conditions are made consistent. This means that each price must equal value, rather than, as Marx leaves it, that total price equals total value. The argument is that, in proceeding from values to prices, it is also necessary to transform the values of constant capital and variable capital into prices, just as Marx transforms the surplus value into profit. Marx himself notes that the elements of cost price (constant and variable capital) actually deviate from their values.[54] This he dismisses with the observation

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53. Capital, III, 890.

54. Ibid., III, 194, 242. Marx makes this point again when he says, "It is clear that the transformation of values into prices of

that the total cost prices equal the total value, so that the calculation is correct in the aggregate.[55] Thus, in the transformation of values into production prices, Marx explicitly transforms only the S part of the total capital. He implies that the C and V parts are similarly transformed from values into prices but he does not complete the transformation.

Marx leaves the question with the conclusions that total price equals total value, total profit equals total surplus value, and total cost price equals total C plus V. These conclusions follow only under two conditions: 1) that the organic composition of the money commodity is equal to the average composition of capital, and therefore that the price of the numeraire (the commodities it will buy) equals its value; 2) the price transformation schema is a two-department model. These conditions will become more clearer as we proceed.

Here we shall consider three different attempts to solve the problem of value-price transformation. They are similar insofar as each is based on a three-department schema of simple reproduction, which divides social production into 1) means of production, 2) workers' consumption goods, and 3) capitalists' luxury goods. Each system assumes 1) an annual turnover of capital, 2) an equal rate of surplus value, and 3) an unequal organic composition

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production works doubly. . ."in transforming the surplus value into profit and the constant and variable capitals into cost prices differing from values. (Theorien uber den Mehrwert, III, 200-1.)

55. Capital, III, 188.

of capital among the three departments. The different methods of transformation yield different results, which in no case correspond exactly to the results expected by Marx.

The first attempt at value-price transformation is that of Tugan-Baranowsky.[56] Using labor time as numeraire, Tugan transforms the price schema into a corresponding value schema -- a procedure which reverses the logic of the problem. Tugan holds that the fact that the rate of profit and the relations among the aggregates of constant capital, variable capital, and surplus value in the value schema differ from those of the price schema invalidates the Marxian system.[57]

The basic work in the problem of value-price transformation is that of Bortkiewicz.[58] His model transforms values into prices. The unknowns of the problem are the rate of profit and

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56. Michael Tugan-Baranowsky, Theoretische Grundlagen des Marxismus (Leipzig, 1905), 170-4.

57. Ibid., 174. Tugan also uses these discrepancies, among other things, in his attempt to invalidate the law of the falling tendency of the rate of profit. This will be taken up in another connection.

58. Ladislaus von Bortkiewicz, "Zur Berichtigung der Grundlegenden Theoretischen Konstruction von Marx im dritten Band des 'Kapital'," Jahrbucher für Nationalökonomie und Statistik, Bd. XXXIV, Heft 3 (1907), 319-35. Bortkiewicz examines the literature on the so-called contradiction between Volumes I and III of Capital, and the problem of price transformation at some length in the first two parts of his article, "Wertrechnung und Preisrechnung im Marxschen System," Archiv für Sozialwissenschaft und Sozialpolitik, Bd. XXIII, Heft 1 (1906), 1-50; Bd. XXV, Heft 1 (1907), 10-51; Bd. XXXVIII, Heft 2 (1907), 445-488. For a convenient summary of the Bortkiewicz article, see Chapter 7, "The Transformation of Values into Prices," in Paul M. Sweezy's Theory of Capitalist Development (New York, 1942), 109-130.

the coefficients x, y, and z which transform C, V, and S from values to prices, and r, the rate of profit. The numeraire, gold, is derived by setting z, the coefficient of transformation for the luxury goods department (in which gold is produced) as equal to one.

By the Bortkiewicz method, transformation of values into prices, only partially carried out by Marx, is completed. However, the results are not those Marx expects. Total price does not equal total value; in this schema it exceeds total value. The reason is the purely formal one that the organic composition of Department III (the luxury goods department) and hence of gold, the unit of account is below the average. Total price would equal total value if the organic composition in the gold industry were equal to the average.

An alternative method of price transformation is that of Moszkowska.[59] Here labor time remains the numeraire in the price as well as the value schema. This method of calculation avoids the difficulty with the organic composition of gold, but it conflicts with the fundamental logic of the problem, which is one of transformation into _money prices_. The unknowns in this method are the actual deviations of prices from values. In this schema, when total price equals total value, total profit is unequal to total surplus value and vice versa.[60] This result, as with Bortkiewicz' method, follows only from the fact that the model is one of three departments, in which the total price differs

59. Natalie Moszkowska, _Das Marxschen System_ (Berlin, 1929), 5-22.

60. _Ibid._, 19.

from the total value in Department III (or total profit is unequal to the total surplus value). It does not follow in the two-department model Marx uses. However, the fact that the results seem to depend on the number of departments need not upset the whole Marxian system.[61] The economically unwarranted division of Department II, Marx's consumption goods department, into two departments of unequal organic composition, which separately produce consumption goods for workers and luxuries for capitalists, and the assumption that the organic composition in the luxury goods department deviates from the general average, rest on arbitrary suppositions. The logic of Marx's fundamental argument that total price equals total value is still valid.

Of the three methods of transformation, the method of Bortkiewicz is the most useful because, unlike that of Tugan-Baranowsky, it proceeds from values to prices, and unlike both that of Tugan-Baranowsky and Moszkowska, it uses money, rather than labor-time as numeraire. While the results of this method contradict the Marxian conclusions that total price equals total value, and total profit equals total surplus value, because of the formal construction of the schema, the transformation of values into prices of production remains a valuable theoretical supplement to Marx's system. However, the technical demonstration of the compatibility of the equilibrium conditions of the value form and the price of production form must not conceal the essential fact

61. If Department II is subdivided, Department I, producing means of production, logically should be subdivided similarly.

that, although logically the price schema can be reduced to the
value schema, since prices are derived from values, the value form
is only a theoretical first approximation, a purely logical equi-
librium system, which never prevails in reality. It is logically
and historically prior to the price of production form.[62] But the
essential instability of the value equilibrium, the fact that
capitalist production necessarily creates both unequal composi-
tions of capital and equal rates of profit, creates persistent
price deviations.

C. Market Value Equilibrium

In the successive approximation of reality, the price of
production is succeeded by a price form known as market value. The
market value is the marginal price of production, to which competition
reduces all individual prices of production within the industry. From
the confusing passages in the third volume of Capital, we judge that
Marx regards the market value as a kind of weighted average of the
prices of production, an average determined by distribution of firms
according to what he calls "conditions of production."[63] These condi-
tions of production involve differences in cost-prices and in produc-
tivity. In equilibrium market value equals price of production, since
all prices of production must equal the marginal, rather than the
average, price of production. Marx slips on this point although he
is aware of the difference between average and marginal price deter-
mination. The reason for this error is probably his failure to deal with
demand and supply as schedules, rather than as absolute quantities.

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62. Capital, III, 209.

63. Ibid., III, 210-219.

D. Market Price Equilibrium

The market value once given is the norm around which fluc-
tuates/ the market price.   The market price is the actual price at which
commodities sell, the concrete result of the interaction of supply
and demand. [64]   In equilibrium, price deviations from market values
are eliminated, so that market price equals market value.

The transformation of the original values into market
prices is thus a successive transformation of four stages. [65]   The

64. Ibid., III, 223-4.

65. Our four-stage transformation is an attempted reconstruction,
rather than a summary, of Marx's argument. Marx himself leaves the
argument in an unfinished state. Most confusing is his treatment
of market value. In one passage, market value appears to be an
average of values, rather than of prices of production. Here
market value is defined "on the one hand, as the average value of
the commodities produced in a certain sphere, and on the other side,
as the individual value of commodities produced under the average
conditions of their respective sphere of production and constitut-
ing the bulk of the products of that sphere." (Ibid., III, 210.)
Marx then speaks of the fluctuations of market prices around this
market value, or around the prices of production, if the latter
takes the place of the market value. (Ibid., III, 211.)
    To make the analysis more confusing, in one passage Marx
speaks of a market-price of production, differeing from market
value, to which market prices are reduced. (Ibid., III, 244.)
    Elsewhere Marx gives the four stages of transformation as
we have given it above. He says, "The price of production is
reduced...to value, if one considers the total capital in place
of isolated spheres.
    "On the other hand the market prices of each sphere are
constantly reduced to price of production by the competition of
capital of different spheres. In each sphere the competition of
capitalists seeks to reduce the market price of a commodity to
its market value. The competition of capitalists of different
spheres reduces the market value to the price of production."
(Theorien uber den Mehrwert, III, 578.)
    Although price of production, market value, and market price
are all equal in equilibrium, so that market prices can be said to
fluctuate around the price of production, a four stage analysis
which includes market value is more useful. For market value
differs from price of production, not only because cost prices

extent of the deviation of market price from labor value can be
viewed as a measure of the disequilibrium of the system. Yet
despite large deviations, the system is maintained through the
law of value. Competition creates these deviations and yields
results which appear to contradict the law of value. "Everything
appears upside down in competition."[66] Yet from market prices back
to values, each theoretical stage can be reduced, in equilibrium,
to its preceding stage.

This method of analysis is very different from orthodox
static equilibrium theory which views the system in terms of one
set of quantitative deviations from the theoretical norm. In the
Marxian system, concrete reality is explained in terms of the
theoretical norm by a series of quantitative, and, ultimately, of
qualitative changes. Most characteristic is the fact that equi-
librium is not a theoretically deduced state of rest to which the
system tends to return, but a state which competition inevitably
tends to upset, and to replace by a new form of equilibrium. As
we shall see later, in the struggle between the equilibrating and
disequilibrating tendencies within the capitalist system, the ten-
dency to disequilibration is ultimately dominant.

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vary among firms in the same industry, but because, even with the
same cost prices, depending on the size and efficiency of different
firms, there are differences in the use values produced by the
same capitals. Thus since the market price of each individual
commodity is not immediately reduced to its price of production,
the more productive firms reap short-run extra gains. The ad-
vantage in including the market value form is that it shows that
within a given industry, despite equality of the composition of
capitals, the level of productivity may be unequal.

66. Ibid., III, 244.